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# High Amplitude Acoustic Behavior of a Slit-Orifice backed by a Cavity

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### **Foreword/Acknowledgments**

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Mr. Mike Jones was the Project Manager for NASA Langley Research Center. GTRI's Project Director was Dr. K.K. Ahuja.

This work was carried out to obtain data for validation of computational codes being developed by Dr. C. K. W. Tam of Florida State University. The authors would like to thank Dr. Tam for suggesting the experiment reported here. The authors would also like to thank Mr. Tony Parrott and Mr. Mike Jones of NASA Langley Research Center for their support of this work.

Note that this report is one of five separate volumes prepared to document the work conducted by GTRI under NASA Grant NAG1-1734. The GTRI report numbers, authors, and titles of each report are listed in the table below:

<b>GTRI Report Number</b>	<b>Authors</b>	<b>Title</b>
A5004/2000-1	Ahuja, K. K. and Gaeta, R. J.	Active Control of Liner Impedance by Varying Perforate Orifice Geometry
A5004/2000-2	Ahuja, K. K., Munro, S. E. and Gaeta, R. J.	Flow Duct Data for Validation of Acoustic Liner Codes for Impedance Eduction
A5004/2000-3	Ahuja, K. K., Gaeta, R. J. and D'Agostino, M. S.	High Amplitude Acoustic Behavior of a Slit-Orifice backed by a Cavity
A5004/2000-4	Ahuja, K. K., Gaeta, R. J. and D'Agostino, M. S.	Acoustic Absorption Characteristics of an Orifice With a Mean Bias Flow
A5004/2000-5	Ahuja, K. K., Cataldi, P. and Gaeta, R. J.	Sound Absorption of a 2DOF Resonant Liner with Negative Bias Flow

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### **Executive Summary**

The objective of the study reported here was to acquire detailed acoustic data and limited and flow visualization data for numerical validation a new model of sound absorption by a very narrow rectangular slit backed by a cavity. The sound absorption model is being developed by Dr. C. K. W. Tam of Florida State University. This report documents normal incidence impedance measurements of a singular rectangular slit orifice with no mean flow. All impedance measurements are made within a 1.12 inch (28.5 mm) diameter impedance tube using the two-microphone method for several frequencies in the range 1000 –6000Hz and incident sound pressure levels in the range 130 – 150 dB. In the interest of leaving the analysis of the data to the developers of more advanced analytical and computational models of sound absorption by narrow slits, we have refrained from giving our own explanations of the observed results, although many of the observed results can be explained using the classical explanations of sound absorption by orifices.

## 1.0 Introduction

The state of computational aeroacoustics has progressed to the point where direct numerical simulation (DNS) of acoustic liner performance is imminent. Dr. Chris Tam of Florida State University has developed a DNS aeroacoustics code to examine sound absorbing properties of orifices with a backing cavity<sup>1</sup>. In an effort to help validate his model, GTRI has conducted an experiment that measures the impedance of a slit-orifice with a backing cavity for several frequencies and incident sound pressure levels. Furthermore, flow visualization using a Particle Imaging Velocimeter was obtained of the acoustic interaction with the slit-orifice cavity which allowed for qualitative assessment of the slit acoustic behavior. This report documents these impedance and flow visualization experiments.

## 2.0 Experimental Approach and Facilities

The numerical model of Dr. Tam<sup>1</sup> is two-dimensional, and employed a 0.032 inch (0.8 mm) wide slit covering a rectangular cavity whose depth was equal to the quarter-wavelength of a 3000 Hz acoustic wave (2.88 cm). Experiments conducted at GTRI used a normal incidence impedance tube with a circular cross section. With these differences noted, Figure 1 shows the set-up of the GTRI experiments. The controlled variables in this experiment were acoustic frequency and amplitude. Table I shows the test conditions covered in the present study. It should be noted that 5000 Hz was not examined as a high enough amplitude could not be attained with our driver-impedance tube system. For each case, the reflection coefficient, absorption coefficient, and acoustic impedance were measured.

Frequency [Hz]	Incident Amplitude [dB]
1000	130, 150
2000	130, 150
3000	130, 150
4000	130, 150
6000	130, 150

Table I. Test conditions for slit-orifice with backing cavity.

Investigation of the fluid motion caused by the impinging sound wave near the slit-orifice was performed using an acrylic tube of nominally the same dimensions as the steel impedance tube shown in Figure 1. Using a Particle Image Velocimeter (PIV), a laser sheet was introduced across the width of the slit-orifice and cavity, illuminating incense smoke that was allowed to fill the tube before the driver was turned on. For 1000 Hz and 3000 Hz, images were obtained which allow visualization of the instantaneous fluid in motion at both 130 dB and 150 dB. This allowed visualization of vortex formation downstream of the slit when it took place.

### 2.1 Normal Incidence Impedance Tube

The normal incidence acoustic impedance was measured in a steel impedance tube that operates using the Two Microphone Method as originally described by Chung and Blaser<sup>2</sup>. The general specifications of the impedance tube are detailed in reference 3. The tube's inner diameter is 1.12 inches (28.5 mm) and an orifice plate containing the slit-orifice was placed between flanges on the impedance tube at the measurement reference plane. A high intensity acoustic driver was used to produce sinusoidal incident acoustic waves upon the slit orifice. Figure 2 shows the actual slit-orifice plate used in the experiments.

## **2.2 Normal Incidence Acoustic Flow Visualization Apparatus**

GTRI uses a state-of-the-art TSI Power View PIV system. This system incorporates a high resolution, 30 frames per second CCD camera, dual-YAG lasers, and a Laser Pulse Light Arm for delivery of the laser beam. A clear acrylic tube was attached to an acoustic driver at one end and a slit-orifice with backing cavity at the other end. Dimensions of this apparatus were chosen to simulate the steel impedance tube configuration alluded to above. Indeed the same acoustic driver model was used and the same orifice plate was used. Driver voltages used in the impedance tube experiments were input to simulate the same conditions for the flow visualization apparatus. Figure 3 shows a schematic of this apparatus and its "field of view."

## **3.0 Data Acquisition and Reduction**

Acoustic impedance was determined using acoustic measurements from two microphones that were flush mounted near the reference plane where the orifice was placed (see Figure 1). The cross-spectra data from these signals were processed with an HP 3667A Signal Analyzer and then used in the Chung and Blaser<sup>2</sup> algorithm for the Two Microphone Method processed on a Pentium II platform. A sinusoidal input from a function generator was supplied to the JBL acoustic driver via a Carvin Amplifier. The amplitude of the discrete tone was fixed at constant incident sound pressure levels prescribed in Table I. The incident amplitude was extracted from the measured impedance via the method outlined in Chung and Blaser<sup>2</sup>. It took several iterations before finding the correct driver voltage that produced the correct incident sound pressure level, but once found, the voltage was matched for all subsequent runs to produce a given amplitude of incident sound. Data from the microphones were analyzed from 0 – 6400 Hz with a bandwidth of 4 Hz and 64 averages.

## **4.0 Results**

### **4.1 Incident Sound Pressure Level Spectra**

Sound pressure level (SPL) as a function of spectra were obtained and are provided in Appendix A for use in computational models. Figure 4a and 4b show typical spectra of incident SPL for a 3000 Hz input signal for nominal amplitudes of 130 dB and 150 dB, respectively. Note that for both of these amplitudes, relatively strong harmonics exist. However, the first harmonic for the 150 dB case is almost 20 dB lower than the fundamental. For comparison purposes, the acoustic impedance was measured for an incident broadband noise signal of an average value of about 85 dB at all frequencies up to 6 kHz. Figure 5 shows the incident broadband noise spectrum for this case. The impedance resulting from this broadband incident spectrum can be considered the "linear" response of the slit-orifice-cavity.

## 4.2 Absorption Coefficient Data

The absorption coefficient was calculated from the measured reflection coefficient using the relationship:

$$\alpha = 1 - |R|^2 \quad (1)$$

where the complex Reflection coefficient,  $R$ , is expressed as a function of the complex normalized impedance,  $Z$ , as:

$$R = \frac{Z - 1}{Z + 1} \quad (2)$$

Figure 6 shows the absorption coefficient for the slit-orifice with backing cavity as a function of frequency and two magnitudes of incident sinusoidal tones: 130 and 150 dB. For comparison, the absorption coefficient for the low level incident broadband noise signal is also included. Note that the broadband data shows a relative peak absorption near 1086 Hz, with another peak near 6200 Hz. The latter peak corresponds to the anti-resonance condition where the reactance and resistance are near optimal for absorption. The peak at 1086 Hz corresponds approximately to the Helmholtz resonator frequency. Following Ingard's formulation<sup>4</sup> for the end correction of a rectangular orifice, the approximate end correction to be applied for the slit orifice is

$$\delta_{end} = 0.4 \sqrt{A_o} \quad (3)$$

which is less than half of its value for a circular orifice in an infinite plane. Thus, using this modified end correction and the appropriate values of orifice area and cavity volume in the classical Helmholtz equation yields a resonance frequency of 1102 Hz. This agrees remarkably well with the measured peak absorption of 1086 Hz.

Figure 6 also shows that the absorption in the vicinity of the Helmholtz resonance frequency increases significantly with increased incident SPL as evidenced by the 130 dB and 150 dB tone results. This is an indication of the nonlinear behavior of the slit-orifice. The fact that the 130 dB data has a higher absorption coefficient than the 150 dB data in the resonance region (~ 1100 Hz) may be due to better impedance matching at 130 dB.

## 4.3 Reflection Coefficient and Impedance Data

Figure 7 shows the reflection coefficient data for the broadband, 130 dB and 150 dB incident level cases. Both magnitude and phase are presented. The magnitude of the reflection coefficient follow trends exhibited by the absorption coefficient due to the relationship defined in equation 1. Figure 8 shows the corresponding impedance, both resistance and reactance are presented. The increased resistance as the incident SPL is increased (see Figure 8a) demonstrates the nonlinear nature of the slit-orifice under increasing incident sound energy. The frequencies at which the normalized reactance vanishes (see Figure 8b) correspond to the peak absorption frequencies of Figure 6.

## 4.4 Flow Visualization

Visualization of the acoustic interaction of the slit-orifice with backing cavity was performed with a PIV apparatus described in Section 2. Figure 9 shows some typical flow patterns of a relatively low and high incident SPLs occurring near the slit-orifice and in the backing cavity. At the lower incident levels (Figure 9a), flow circulation patterns are visible that correspond to patterns that Ingard and Labate<sup>5</sup> first documented many years ago. The incident sound pressure levels in Figure 9a correspond approximately to levels that exist for a broadband signal. At high



incident levels (Figure 9b) clear indications of vortical motion is present, which is indicative of high fluctuating velocity in the orifice, thus producing vorticity formation at the orifice edges.

Figure 10 shows an instantaneous snapshot of the slit-orifice exposed to an incident sinusoidal acoustic wave of 1000 Hz at 130 dB and 150 dB. It is clear that even at 130 dB, there is a strong vortex that is convecting away from the orifice. A similar vortex can be seen at 150 dB. This suggests that strong acoustic absorption in the form of conversion of acoustic energy into vortical energy is present at these conditions as quantitatively shown in Figure 6.

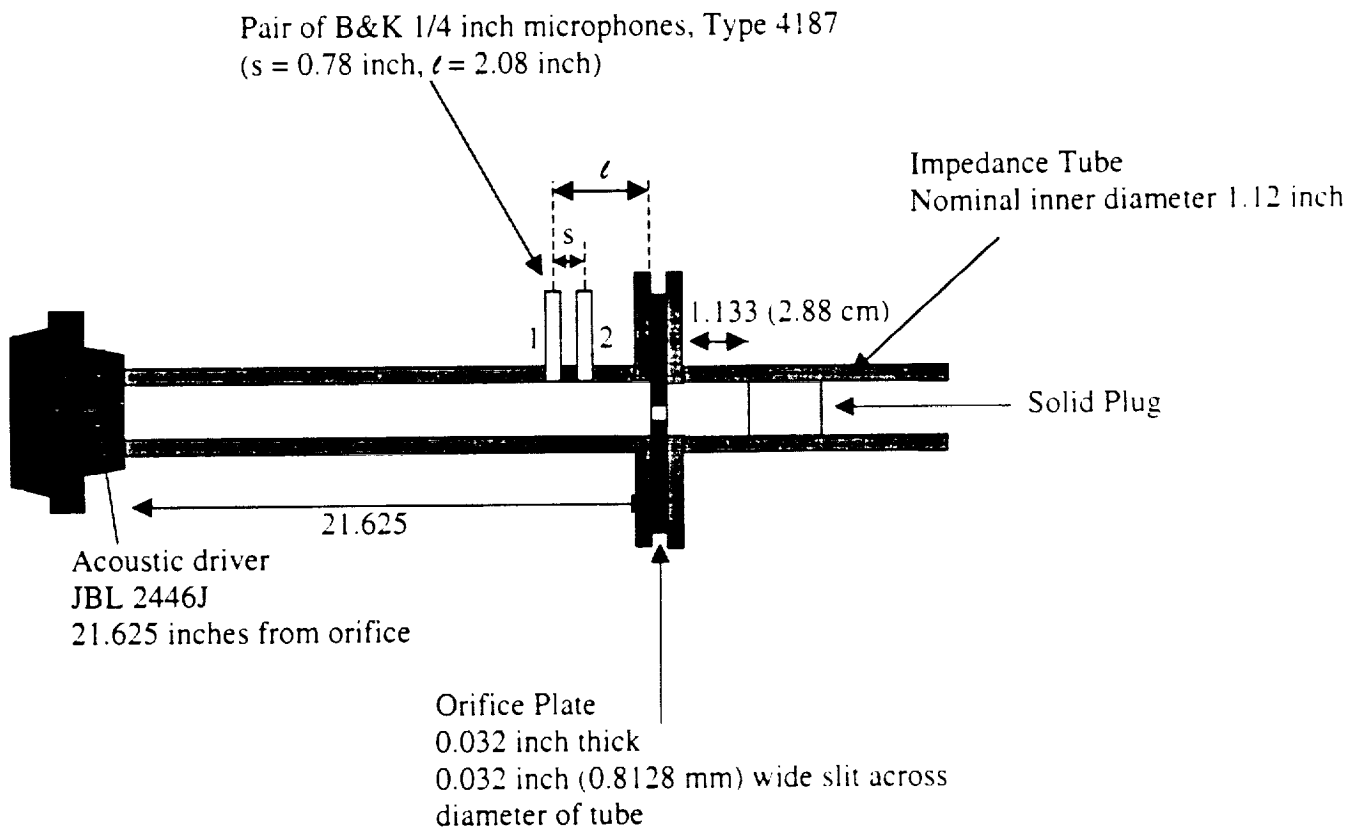
Figure 11 shows an instantaneous snapshot of the slit-orifice exposed to a incident sound wave of 3000 Hz at 130 dB and 150 dB. Note that at 130 dB, the flow patterns look similar to those observed in Figure 9a, i.e., for low incident SPL. This would suggest that not a lot of absorption is taking place via vorticity formation relative to 130 dB at 1000 Hz. This can be shown by comparing Figure 10 and Figure 11 at the 130 dB conditions. Note that the 1000 Hz flow pattern clearly shows a strong vortex at 130 dB while none is present at 3000 Hz. The absorption coefficient data of Figure 6 confirms this. Furthermore, at 3000 Hz and 150 dB, a vortex is present, again suggesting an increase in acoustic absorption. This is also shown in the absorption coefficient data when comparing the 130 dB and 150 dB cases at 3000 Hz.

## **5.0 Concluding Comments**

Note that the purpose of acquiring the data presented here was to provide it to Dr. Tam for validating the numerical model of sound absorption by a narrow rectangular slit orifice with a backing cavity. being developed by him. The data has been provided to him and NASA Langley Technical monitor for use by others. We understand that Dr. Tams model predicts most of our findings. A joint paper will be presented in a future conference to discuss this comparison.

## 6.0 References

1. Tam, C. and Kurbatskii, K., Micro-Fluid Dynamics and Acoustics of Resonant Liners, AIAA Paper No. 99-1850, Presented at the 5<sup>th</sup> AIAA/CEAS Aeroacoustics Conference, May 10-12, 1998, Seattle, WA.
2. Chung, J. Y. and Blaser, D. A., Transfer Function Method of Measuring In-Duct Acoustic Properties: I. Theory Journal of the Acoustic Society of America, Volume 68, No. 3, Sept., 1980.
3. Gaeta, R. J., Liner Impedance Modification by Varying Perforate Orifice Geometry Ph.D. Thesis, Georgia Institute of Technology, 1998.
4. Ingard, U., On the Theory and Design of Acoustic Resonators Journal of the Acoustical Society of America, Volume 25, No. 6, November, 1953.
5. Ingard, U. and Labate, S., Acoustic Circulation Effects and the Nonlinear Impedance of Orifices Journal of the Acoustical Society of America, Vol. 22, No. 2, March 1950.



**All Dimensions in Inches**

Figure 1. Experimental set-up of GTRI impedance tube with slit-orifice cavity.

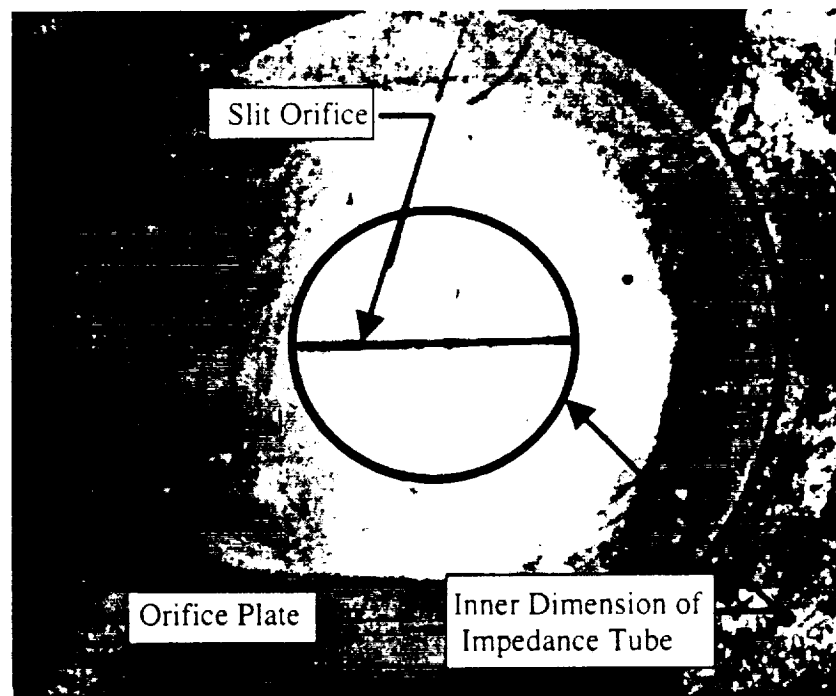


Figure 2. Slit-Orifice used with backing cavity for high amplitude impedance experiments.

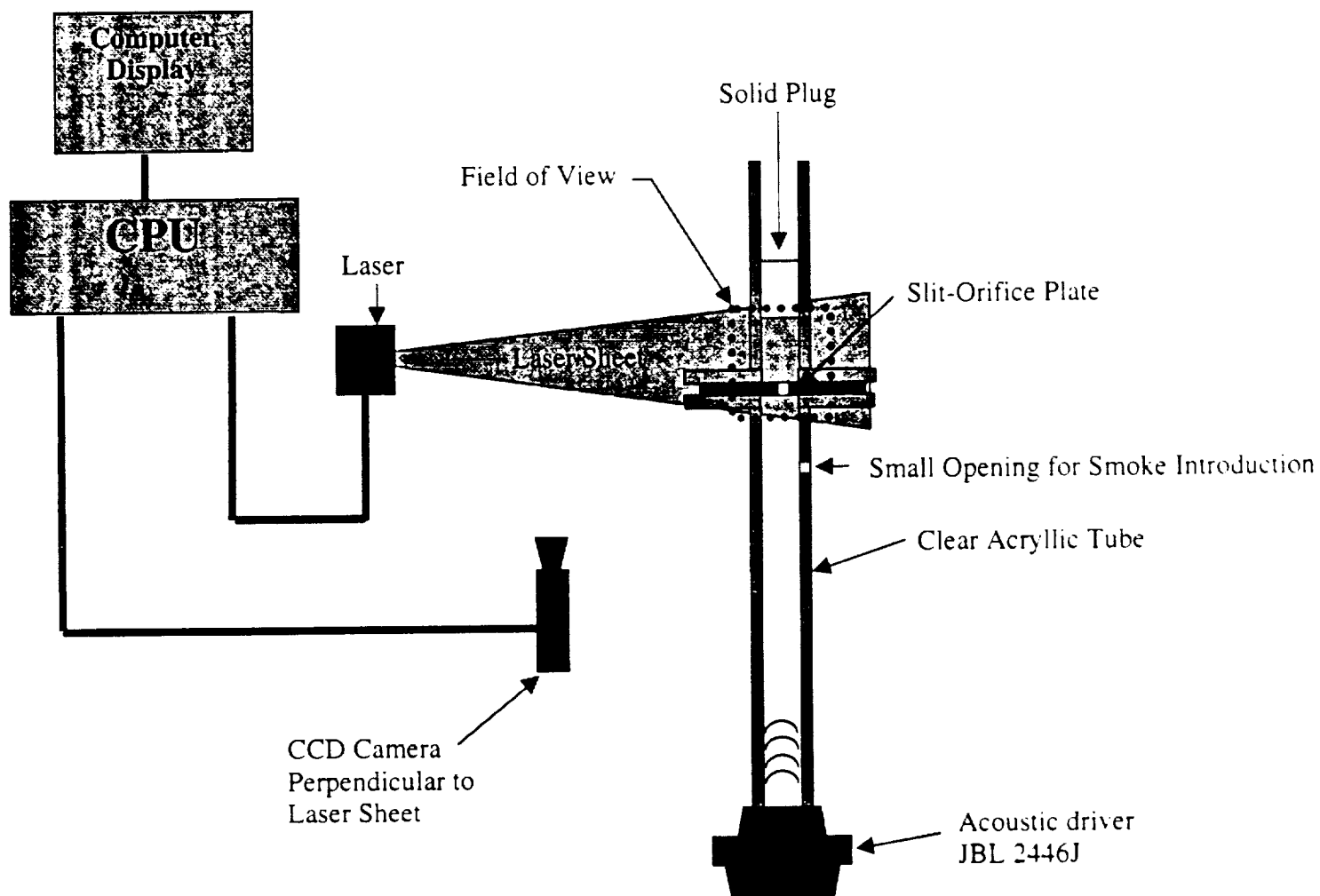
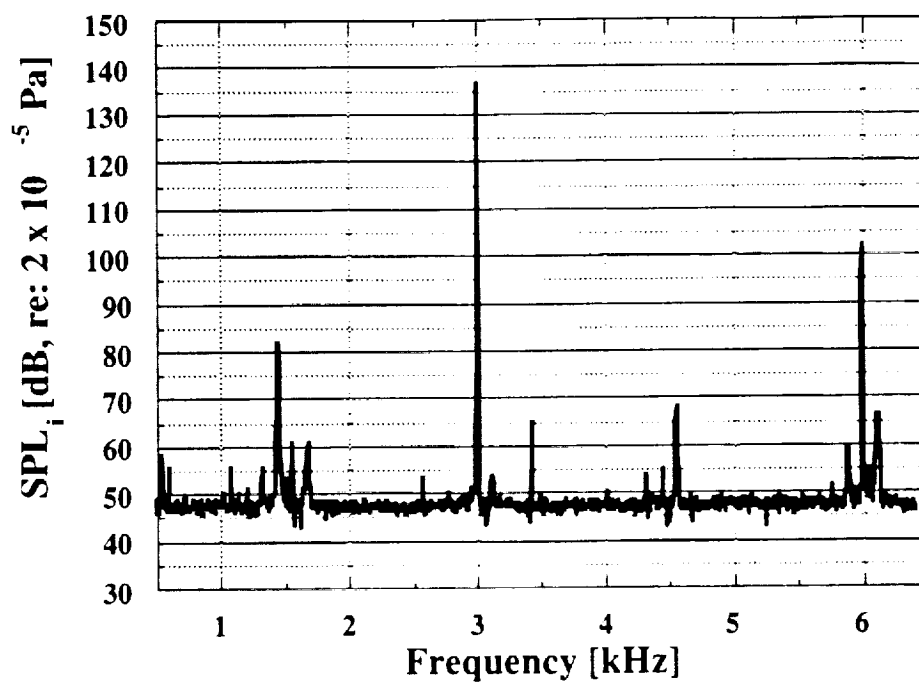
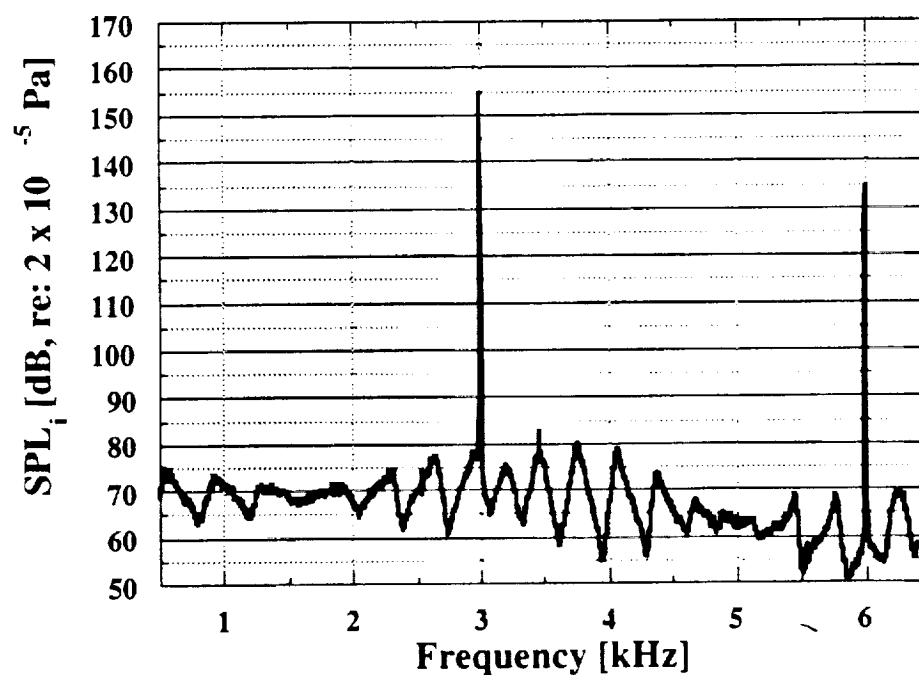


Figure 3. Experimental set-up of acoustic flow visualization apparatus.



a. Nominal 130 dB



b. Nominal 130 dB

Figure 4. Typical incident SPL spectra obtained for slit-orifice with backing cavity [0-6400 Hz;  $\Delta f = 4$  Hz; 64 avgs.]

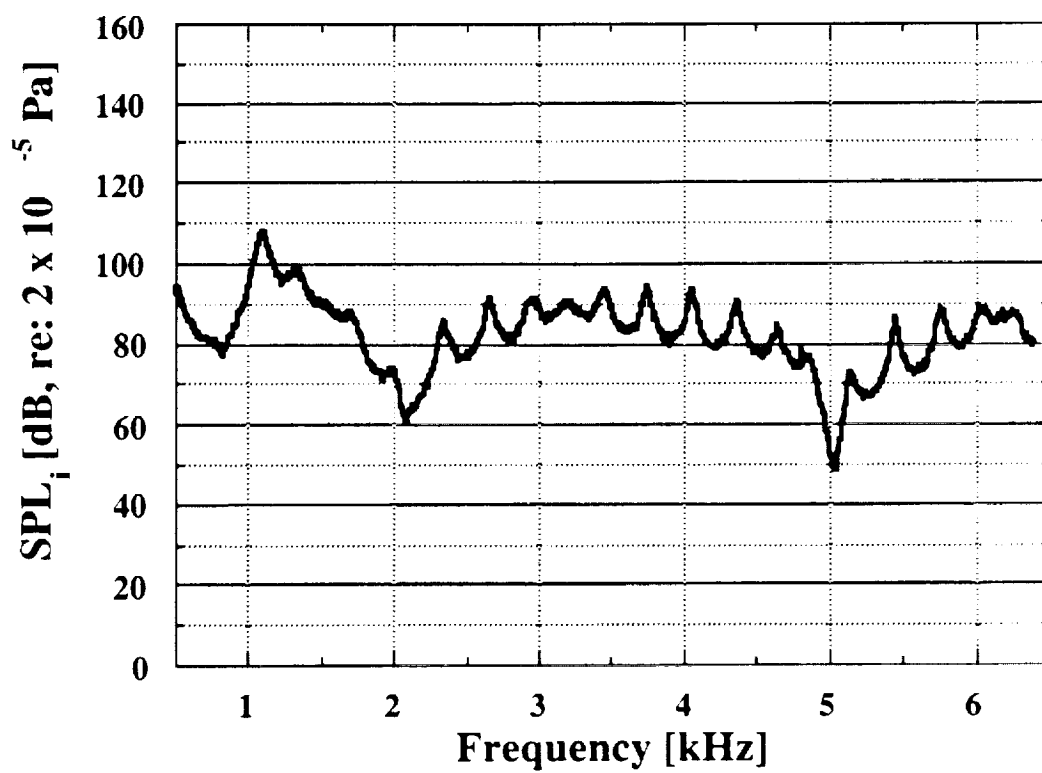


Figure 5. Incident SPL spectrum for broadband noise incident to slit-orifice with backing cavity [0-6400 Hz;  $\Delta f = 4$  Hz; 64 avgs.]

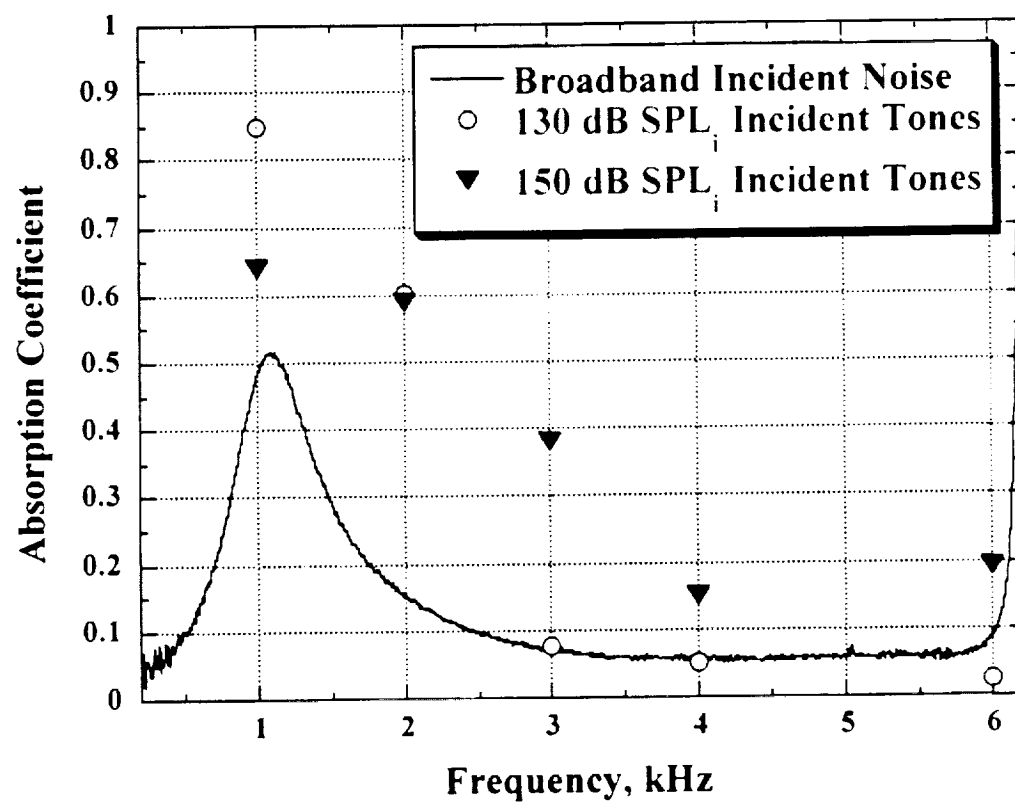


Figure 6. Absorption coefficient for slit-orifice with backing cavity for broadband and single tone input.



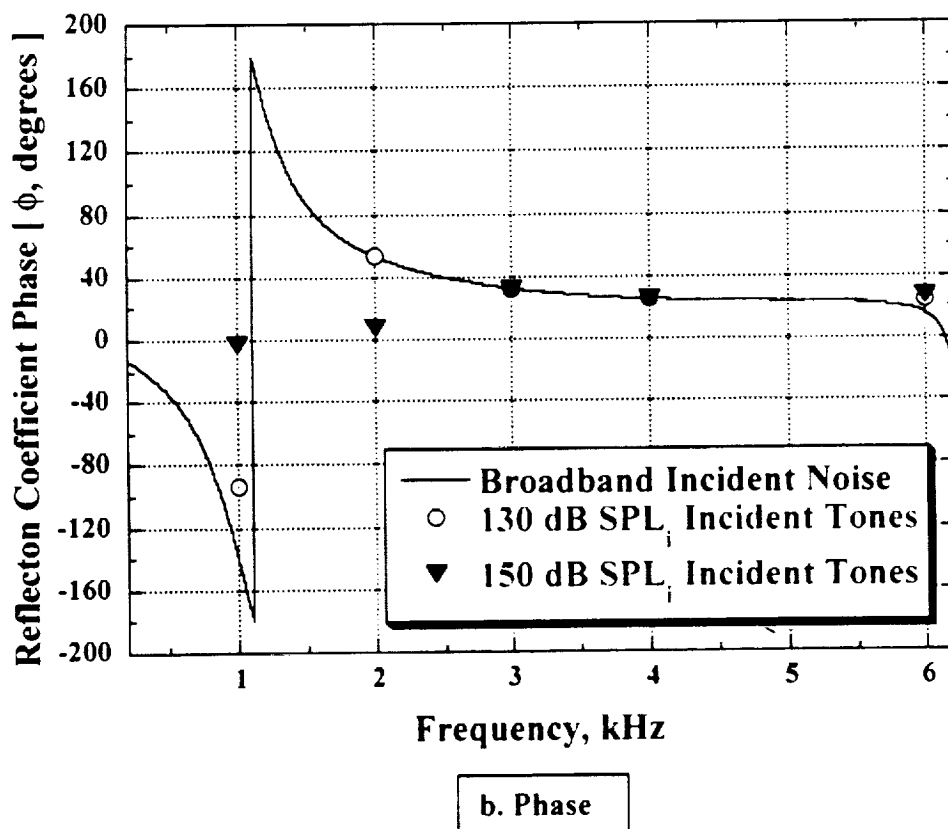
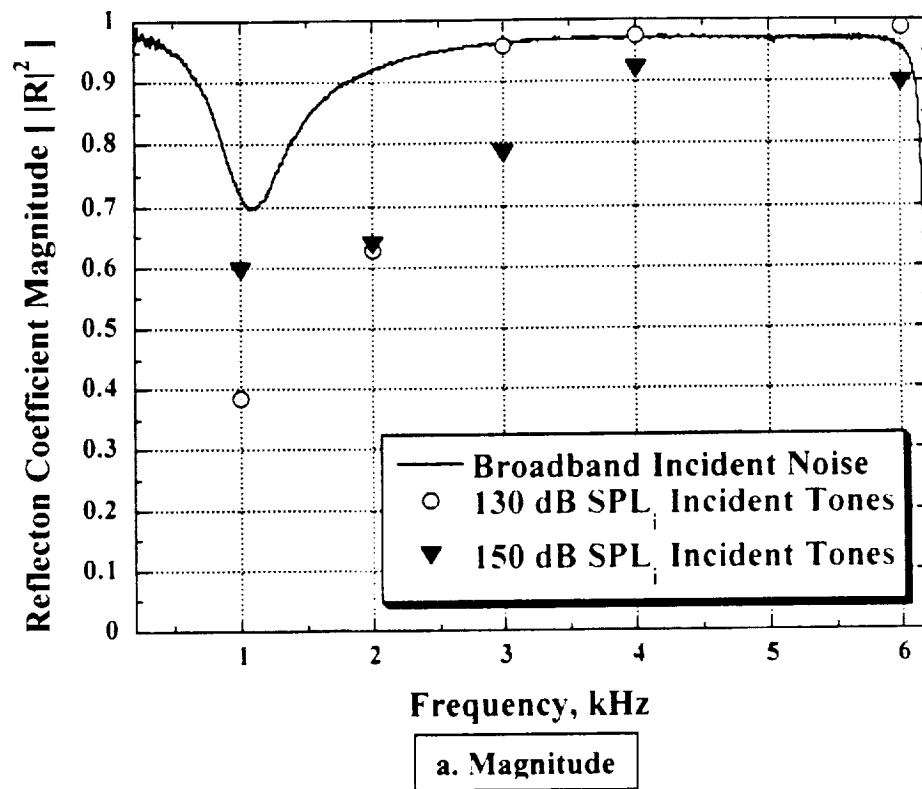
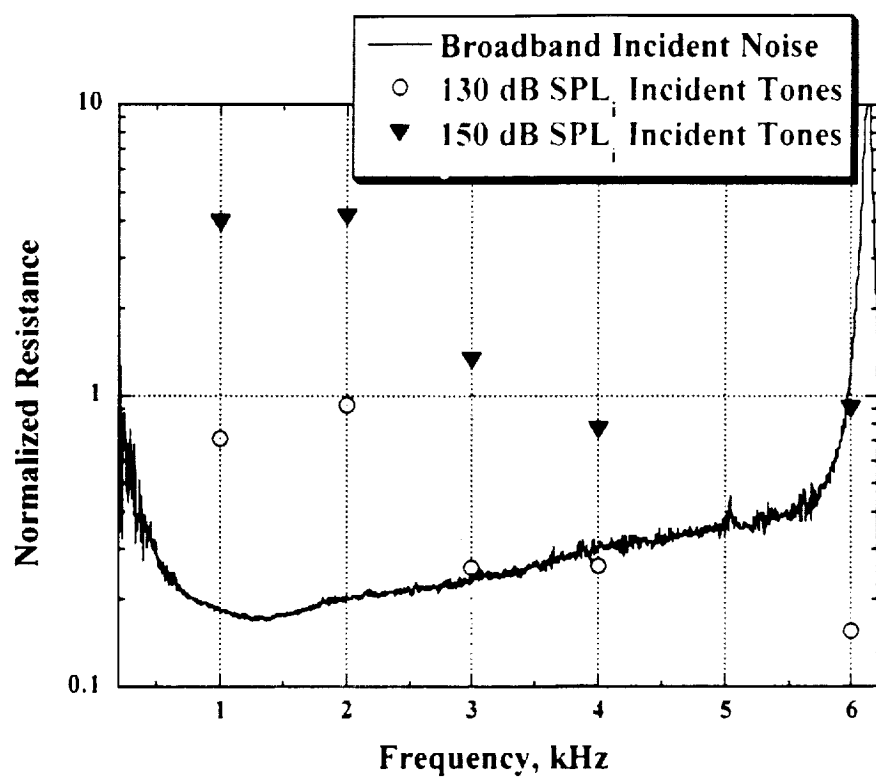
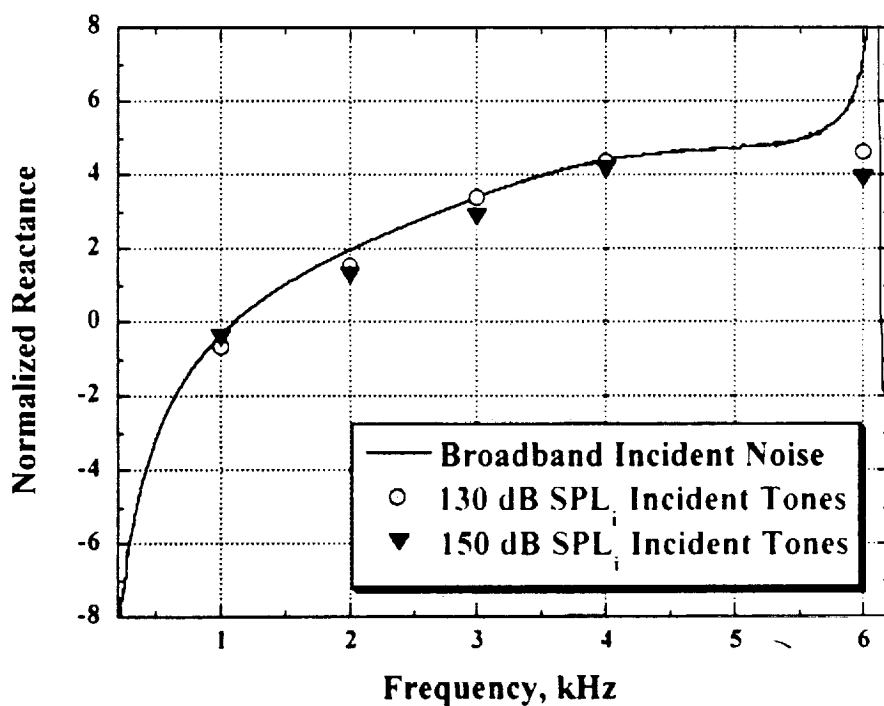


Figure 7. Reflection coefficient of slit-orifice with backing cavity for broadband and tone incident SPL

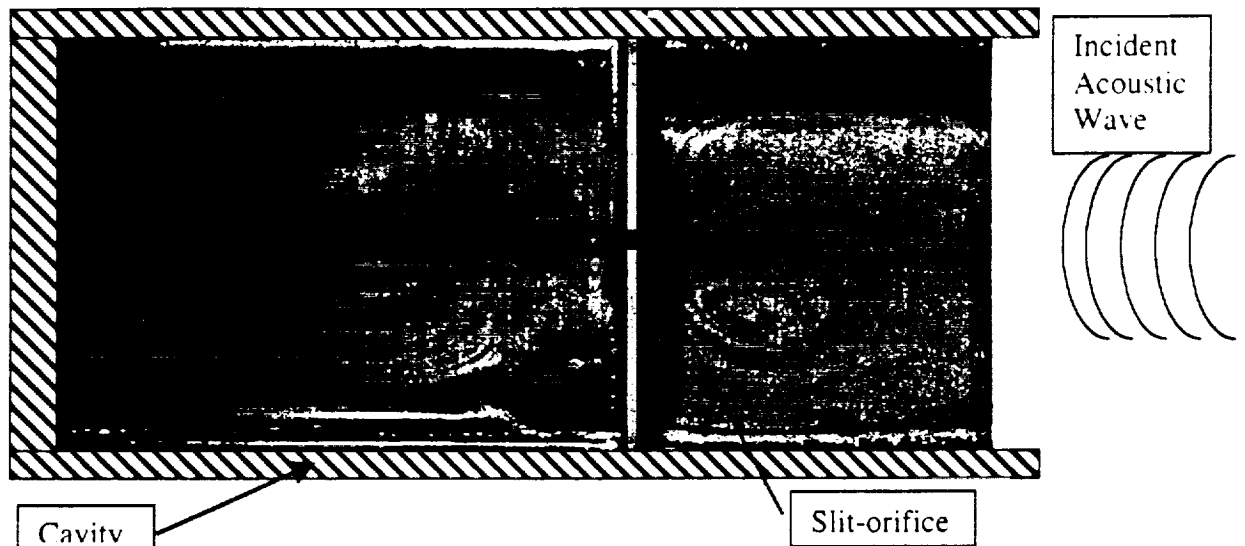


a. Normalized Resistance

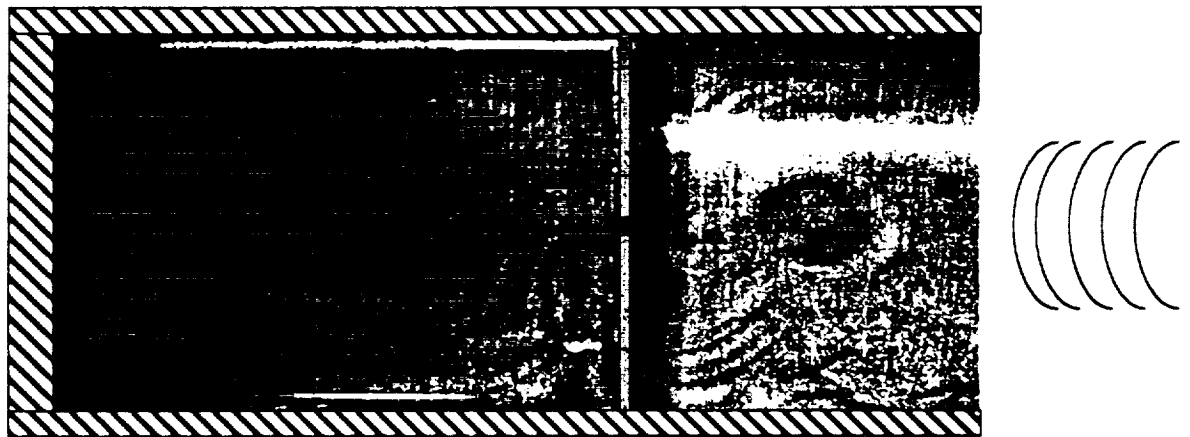


b. Normalized Reactance

Figure 8. Normalized impedance of slit-orifice with backing cavity for broadband and tone incident SPL



*Figure 9a. A typical flow pattern at a relatively low incident SPL*



*Figure 9b. A typical flow pattern at a relatively high incident SPL*

Figure 9. Flow patterns for acoustic-orifice interactions: instantaneous visualization from PIV images.

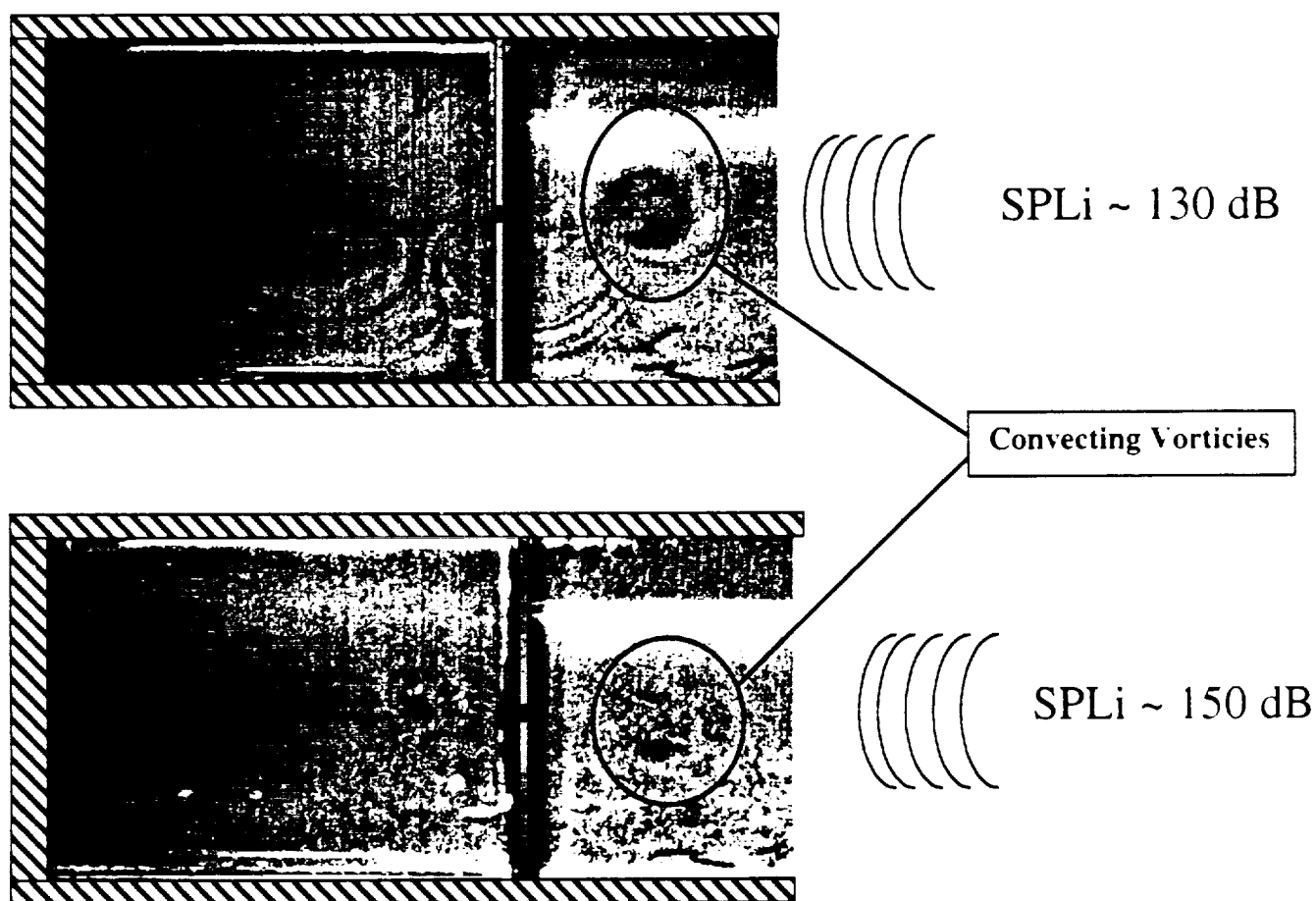
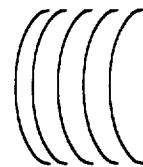
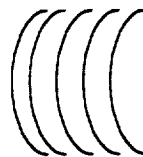
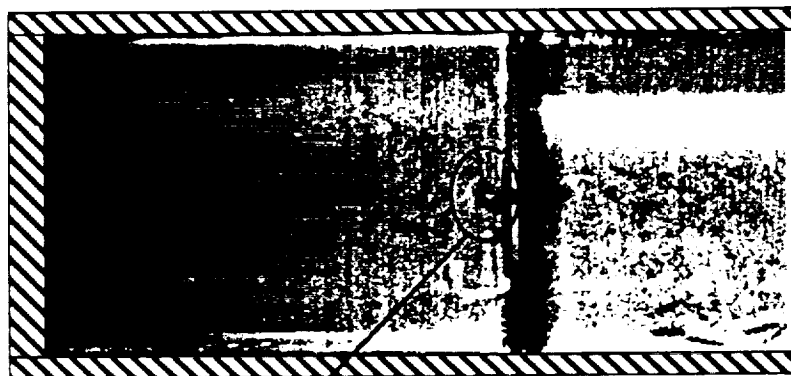


Figure 10. Flow visualization of a 1000 Hz acoustic wave incident upon a slit-orifice with backing cavity



SPLi ~ 130 dB



SPLi ~ 150 dB

Convecting Vortice

Figure 11. Flow visualization of a 3000 Hz acoustic wave incident upon a slit-orifice with backing cavity

## **Appendix A**

### **Tabulated Acoustic Reflection/Absorption Coefficients and Impedance for Tone Inputs at 1, 2, 3, 4, and 6 kHz**

SPLi = 130 dB

Freq. [ kHz]	Absorp.	Ref. [ Mag.]	Ref. [ Phase]	R pc	X/pc
1.0000	0.85120	0.38570	-93.601	0.71100	-0.64310
2.0000	0.60440	0.62900	53.498	0.93360	1.5622
3.0000	0.078500	0.95990	32.646	0.25750	3.3967
4.0000	0.050300	0.97450	25.697	0.25990	4.3696
6.0000	0.027300	0.98620	24.398	0.15510	4.6205

SPLi = 150 dB

Freq. [ kHz]	Absorp.	Ref. [ Mag.]	Ref. [ Phase]	R pc	X pc
1.0000	0.64250	0.59790	-31.0437	3.9331	-0.38870
2.0000	0.59120	0.63940	8.4033	4.1120	1.2998
3.0000	0.38240	0.78590	32.373	1.3180	2.9007
4.0000	0.15140	0.92120	26.232	0.77290	4.1557
6.0000	0.19220	0.89880	27.422	0.90560	3.9038

## **Appendix B**

### **Tabulated Incident Sound Pressure Levels**



Freq.[ kHz]	1 kHz	2 kHz	SPL1 3 kHz	4 kHz	6 kHz
[ kHz]	[ dB]	[ dB]	[ dB]	[ dB]	[ dB]
0.0040000	83.310	95.030	96.330	96.920	97.190
0.0080000	63.170	65.320	57.470	56.840	56.650
0.012000	61.960	64.210	54.770	54.720	54.770
0.016000	59.520	62.750	48.760	49.440	48.670
0.020000	58.420	60.790	47.860	48.130	48.420
0.024000	57.310	59.600	47.870	49.050	47.840
0.028000	55.730	58.670	47.700	47.920	48.000
0.032000	54.460	57.340	47.230	47.760	48.800
0.036000	53.430	56.600	46.260	47.350	48.440
0.040000	52.250	55.780	46.730	47.290	47.650
0.044000	51.790	54.860	46.830	47.530	47.350
0.048000	51.380	54.400	47.630	46.880	46.840
0.052000	50.620	53.830	47.440	47.110	46.480
0.056000	51.030	54.080	50.810	50.570	53.160
0.060000	55.310	55.730	54.630	54.730	57.940
0.064000	51.920	53.050	50.150	50.240	52.770
0.068000	48.650	51.370	46.020	47.590	47.680
0.072000	48.050	51.620	48.120	47.960	48.470
0.076000	50.120	52.630	48.560	49.090	48.480
0.080000	50.870	53.100	49.130	50.590	48.040
0.084000	49.070	49.900	47.300	48.030	47.600
0.088000	47.990	50.050	47.300	47.620	47.610
0.092000	47.410	49.320	46.910	47.590	47.990
0.096000	47.070	49.950	46.870	47.110	47.800
0.10000	47.160	49.670	47.720	47.500	46.650
0.10400	47.880	50.530	47.350	46.560	46.450
0.10800	47.710	50.750	46.370	47.510	46.410
0.11200	48.420	51.070	46.800	47.590	46.600
0.11600	48.840	52.230	48.140	47.820	46.970
0.12000	50.660	52.810	50.080	48.890	47.940
0.12400	48.780	51.090	49.160	48.080	47.380
0.12800	46.450	51.580	47.900	47.830	47.030
0.13200	48.330	52.060	48.370	46.670	47.360
0.13600	48.790	52.490	48.520	46.300	48.600
0.14000	47.740	52.500	47.380	47.560	46.670
0.14400	48.130	52.860	46.770	47.940	46.300
0.14800	48.000	53.330	46.850	47.680	47.070
0.15200	48.850	54.110	46.750	47.010	47.410
0.15600	49.730	54.790	47.740	48.570	46.760
0.16000	49.900	54.950	47.390	48.080	47.200
0.16400	48.830	55.110	47.730	48.230	46.980
0.16800	49.430	55.810	47.610	47.860	46.450
0.17200	49.460	56.400	47.040	47.640	46.870
0.17600	50.660	56.950	49.170	49.470	47.410
0.18000	53.490	58.000	51.610	52.810	47.990
0.18400	51.620	57.690	46.710	49.430	47.360
0.18800	50.970	57.530	47.400	46.770	47.080
0.19200	51.420	58.660	47.220	46.630	47.600
0.19600	51.480	59.810	47.160	46.550	46.690
0.20000	52.260	61.030	47.860	47.750	46.970
0.20400	52.820	60.560	46.760	47.780	46.840
0.20800	52.180	61.090	47.520	47.710	47.420
0.21200	53.060	61.970	46.640	47.280	47.990
0.21600	54.270	63.220	47.240	47.300	47.140

0.22000	54.210	63.030	48.150	48.610	47.720
0.22400	54.710	62.860	47.220	47.890	47.060
0.22800	55.230	63.500	47.240	46.970	47.470
0.23200	56.290	63.740	49.960	49.830	47.830
0.23600	58.650	67.930	58.500	58.680	51.320
0.24000	62.190	69.460	63.460	61.130	50.600
0.24400	58.940	65.160	56.860	57.340	49.940
0.24800	55.920	66.000	47.810	47.330	46.930
0.25200	54.320	64.030	48.350	47.250	47.710
0.25600	53.990	63.950	47.250	46.730	47.780
0.26000	56.740	63.600	47.610	45.590	47.670
0.26400	55.110	63.880	47.180	45.610	47.130
0.26800	57.260	63.590	46.420	46.280	47.590
0.27200	53.920	62.310	47.050	47.640	45.160
0.27600	53.360	62.480	45.930	47.750	47.830
0.28000	53.540	63.270	47.070	45.260	47.580
0.28400	52.420	62.320	47.830	47.610	47.360
0.28800	53.020	61.700	48.090	47.110	46.720
0.29200	52.590	61.650	47.960	47.430	47.010
0.29600	51.910	61.550	49.500	49.570	45.170
0.30000	56.510	61.620	53.280	53.050	48.490
0.30400	51.790	59.660	49.460	45.690	47.930
0.30800	51.010	60.210	46.150	47.710	46.150
0.31200	51.730	60.770	47.050	47.120	47.440
0.31600	50.540	60.760	47.470	45.980	47.240
0.32000	50.260	60.410	47.170	46.900	47.030
0.32400	52.000	60.360	47.000	46.760	46.790
0.32800	50.640	59.050	46.830	47.450	47.160
0.33200	51.530	58.850	46.930	47.620	47.490
0.33600	50.240	58.920	47.380	47.580	47.840
0.34000	49.950	58.270	46.940	47.690	47.850
0.34400	51.240	57.400	46.940	47.020	46.570
0.34800	50.570	57.120	46.430	46.830	46.360
0.35200	49.620	57.040	46.630	47.780	47.370
0.35600	54.170	58.260	52.470	52.770	49.000
0.36000	58.590	60.090	57.720	56.610	49.300
0.36400	53.710	58.060	52.020	50.450	45.120
0.36800	49.170	57.600	47.540	46.380	46.460
0.37200	48.870	56.450	46.530	46.280	47.600
0.37600	49.010	55.490	45.670	46.990	47.180
0.38000	49.470	55.450	46.750	47.590	46.550
0.38400	48.770	55.490	47.370	48.480	47.630
0.38800	49.390	55.410	46.780	47.960	47.880
0.39200	50.000	54.940	49.360	48.780	47.210
0.39600	50.030	54.940	50.360	50.730	47.250
0.40000	47.960	54.820	47.610	47.730	47.410
0.40400	48.390	54.220	46.590	47.840	47.060
0.40800	49.030	54.030	45.630	47.570	47.520
0.41200	47.610	54.550	47.400	47.880	47.130
0.41600	51.280	55.680	49.570	50.990	47.070
0.42000	55.360	58.070	50.730	55.900	47.750
0.42400	51.950	55.090	50.480	50.080	47.790
0.42800	48.740	53.650	46.980	46.080	47.580
0.43200	45.060	54.650	47.030	46.760	47.690
0.43600	47.780	54.660	47.210	46.350	46.650
0.44000	48.760	55.880	47.040	46.530	45.850
0.44400	50.000	56.060	47.000	46.170	46.560

0.44800	50.220	55.400	46.770	47.510	47.290
0.45200	49.510	56.400	46.150	47.260	47.880
0.45600	50.230	57.270	47.120	46.830	48.090
0.46000	51.080	57.740	46.160	47.060	47.380
0.46400	51.560	58.260	46.350	47.370	47.530
0.46800	51.590	58.750	47.060	47.790	46.680
0.47200	52.210	58.590	46.370	48.260	46.900
0.47600	51.880	60.450	57.940	56.530	51.150
0.48000	63.870	62.950	63.850	64.420	54.150
0.48400	56.740	62.820	58.790	58.080	50.000
0.48800	54.220	62.380	47.280	46.830	48.300
0.49200	56.060	62.700	47.830	47.390	47.530
0.49600	57.040	62.840	48.610	46.800	47.170
0.50000	57.110	64.390	47.480	47.160	47.490
0.50400	57.850	65.700	46.250	46.970	47.050
0.50800	59.450	66.010	47.330	46.850	48.220
0.51200	58.300	66.060	47.180	47.020	47.610
0.51600	58.640	66.540	46.160	46.890	46.600
0.52000	59.280	66.000	46.720	46.930	47.480
0.52400	59.610	66.770	47.850	46.710	48.450
0.52800	59.400	67.560	48.380	47.010	46.890
0.53200	59.870	67.800	48.140	47.650	47.550
0.53600	60.950	67.770	53.810	55.000	52.530
0.54000	61.400	68.690	59.140	60.240	55.560
0.54400	61.830	68.450	52.750	54.480	50.440
0.54800	68.830	68.370	48.100	48.660	46.930
0.55200	67.970	68.400	52.340	53.890	47.240
0.55600	59.610	68.340	50.820	48.680	48.640
0.56000	59.020	67.550	47.250	46.750	48.230
0.56400	59.240	67.000	47.660	48.020	47.490
0.56800	58.990	66.650	47.230	47.930	47.370
0.57200	58.560	66.330	47.820	48.010	46.760
0.57600	58.370	66.830	46.640	47.720	46.890
0.58000	55.780	66.980	47.220	48.220	46.400
0.58400	57.610	66.760	47.520	47.590	47.430
0.58800	58.230	66.400	48.140	48.160	47.600
0.59200	58.080	65.380	47.180	47.280	46.790
0.59600	57.970	66.200	51.440	47.130	49.230
0.60000	59.180	67.230	55.550	57.300	50.380
0.60400	59.830	66.690	47.640	51.740	48.120
0.60800	58.080	65.310	47.830	46.960	46.890
0.61200	58.350	64.480	47.710	46.760	47.090
0.61600	58.230	64.270	47.090	47.600	47.220
0.62000	59.270	64.520	46.580	47.610	47.180
0.62400	58.750	64.540	47.330	47.320	47.900
0.62800	58.030	64.710	47.260	47.840	46.070
0.63200	57.260	64.410	46.830	47.250	46.540
0.63600	57.250	63.960	46.720	46.720	48.420
0.64000	58.020	64.100	47.460	46.020	47.000
0.64400	58.080	63.520	46.580	47.650	46.650
0.64800	58.000	62.920	47.740	47.600	47.440
0.65200	57.740	63.240	48.090	47.690	47.660
0.65600	58.310	63.310	47.390	48.150	47.680
0.66000	58.490	63.420	48.750	48.970	46.980
0.66400	58.510	63.670	47.870	46.930	47.160
0.66800	58.230	62.830	47.670	46.830	46.540
0.67200	58.640	62.740	46.850	46.770	45.930

0.67600	58.490	62.840	47.690	47.120	46.930
0.68000	59.500	63.640	47.750	47.280	47.130
0.68400	59.490	63.310	48.060	47.390	46.830
0.68800	58.850	62.530	47.640	47.140	46.690
0.69200	58.620	62.780	47.660	47.610	47.360
0.69600	58.870	62.820	46.190	47.820	48.010
0.70000	58.640	62.810	46.680	46.530	47.480
0.70400	58.640	62.430	46.180	45.980	48.010
0.70800	58.890	62.990	47.030	47.150	48.080
0.71200	59.030	62.120	48.710	47.930	46.400
0.71600	58.640	62.460	48.470	49.920	46.890
0.72000	58.910	62.350	49.680	51.400	47.720
0.72400	59.480	61.730	49.410	48.200	47.380
0.72800	58.490	61.220	47.450	47.450	47.030
0.73200	57.340	61.190	47.100	47.350	46.650
0.73600	57.430	61.660	47.270	47.500	46.170
0.74000	58.150	61.050	46.540	47.040	46.960
0.74400	58.290	60.640	46.990	47.650	47.840
0.74800	58.370	61.410	47.370	48.030	47.580
0.75200	57.790	61.310	47.110	47.710	47.570
0.75600	58.460	61.510	46.560	47.500	47.340
0.76000	58.090	60.250	46.320	48.360	47.760
0.76400	57.530	58.820	46.820	48.070	47.630
0.76800	57.890	59.890	46.790	47.050	46.720
0.77200	58.010	59.800	46.890	48.120	46.060
0.77600	57.690	59.710	47.170	47.760	47.060
0.78000	58.100	59.280	47.390	47.900	47.210
0.78400	57.660	59.410	47.820	47.250	47.150
0.78800	57.510	59.960	48.750	47.210	47.870
0.79200	58.300	59.780	47.820	47.540	47.010
0.79600	58.120	59.360	47.730	47.170	47.190
0.80000	57.740	59.270	47.780	47.110	46.960
0.80400	57.280	58.810	48.060	46.200	46.380
0.80800	56.870	58.070	47.930	46.360	46.710
0.81200	57.140	59.420	48.120	47.340	47.850
0.81600	58.130	60.010	46.670	46.490	46.340
0.82000	58.050	59.990	46.090	47.410	47.600
0.82400	59.170	59.950	47.090	47.100	47.740
0.82800	59.230	59.880	47.550	47.910	46.890
0.83200	60.180	60.200	47.220	47.740	46.930
0.83600	60.530	59.610	47.750	47.840	47.190
0.84000	61.210	61.290	48.580	47.720	46.910
0.84400	59.970	61.700	46.930	47.500	47.330
0.84800	60.370	61.230	46.770	46.980	47.050
0.85200	61.010	62.390	46.130	46.550	47.920
0.85600	61.170	63.710	45.830	46.380	47.430
0.86000	60.870	63.340	46.560	47.320	47.980
0.86400	62.350	63.120	47.090	47.810	47.050
0.86800	61.970	63.690	47.630	48.060	47.360
0.87200	61.590	63.100	47.530	46.790	48.580
0.87600	62.120	64.010	47.550	47.310	47.430
0.88000	62.050	64.300	47.190	47.070	47.870
0.88400	62.270	64.440	47.760	45.900	48.400
0.88800	63.540	64.500	47.530	47.080	48.070
0.89200	63.180	64.430	47.330	48.180	47.240
0.89600	63.430	65.580	47.380	48.490	46.700
0.90000	64.310	66.450	47.650	48.010	46.880

0.90400	64.080	66.950	47.520	46.970	47.220
0.90800	64.930	66.940	46.950	46.570	46.710
0.91200	64.510	66.300	47.530	47.240	46.680
0.91600	64.840	65.360	47.320	46.750	46.810
0.92000	65.100	65.950	46.460	46.670	46.770
0.92400	65.610	66.870	47.060	46.390	47.090
0.92800	65.150	66.570	47.770	47.180	46.820
0.93200	64.480	65.480	47.760	46.460	47.100
0.93600	65.090	65.940	47.050	46.700	47.260
0.94000	65.900	66.240	47.050	47.200	47.210
0.94400	65.890	66.890	47.100	47.060	47.100
0.94800	64.470	67.300	48.100	47.680	46.970
0.95200	63.930	67.670	47.300	47.800	46.980
0.95600	65.340	66.930	46.290	46.160	46.610
0.96000	65.420	65.700	46.560	46.940	50.150
0.96400	65.800	66.280	46.050	47.750	47.190
0.96800	64.850	66.620	46.270	47.630	47.380
0.97200	65.380	66.600	47.350	46.940	46.990
0.97600	66.750	66.690	47.330	47.200	46.340
0.98000	65.410	66.780	47.370	47.510	47.750
0.98400	65.670	65.510	46.250	47.400	47.770
0.98800	66.310	65.380	47.910	47.390	47.790
0.99200	69.570	65.550	47.980	47.300	47.200
0.99600	124.92	65.600	47.550	46.290	46.230
1.0000	130.97	66.110	47.380	46.950	47.480
1.0040	124.97	65.980	47.560	46.360	47.410
1.0080	69.850	64.560	47.470	47.890	47.410
1.0120	66.580	64.840	46.280	46.050	46.770
1.0160	67.000	65.230	49.170	49.120	49.810
1.0200	68.020	65.200	49.900	51.100	51.280
1.0240	67.070	65.640	47.550	47.940	47.930
1.0280	65.680	65.670	47.680	47.380	47.100
1.0320	66.090	65.880	47.950	46.080	47.860
1.0360	66.570	66.080	47.180	47.930	47.160
1.0400	66.170	65.180	47.240	47.000	47.920
1.0440	65.920	65.490	46.030	47.100	47.360
1.0480	65.720	65.370	46.390	46.980	46.580
1.0520	65.660	65.090	46.910	47.830	46.370
1.0560	66.570	64.760	47.610	47.880	47.590
1.0600	66.780	64.710	47.870	46.680	47.100
1.0640	65.850	64.630	47.300	46.400	46.800
1.0680	65.410	64.820	47.500	46.410	46.370
1.0720	65.640	65.050	46.230	47.010	46.650
1.0760	66.390	64.500	52.340	51.230	51.410
1.0800	66.410	64.350	55.310	55.920	51.900
1.0840	66.030	64.400	50.650	51.570	46.590
1.0880	65.140	65.160	47.090	46.070	47.070
1.0920	65.340	64.760	47.420	46.570	46.690
1.0960	65.110	63.320	47.270	47.620	46.680
1.1000	65.130	64.120	46.760	46.770	46.000
1.1040	64.770	64.360	46.700	47.840	47.290
1.1080	64.740	63.680	46.160	46.640	47.840
1.1120	65.050	63.690	46.240	46.730	46.530
1.1160	64.230	63.970	46.360	46.600	46.620
1.1200	64.090	63.450	46.970	46.250	46.760
1.1240	64.990	63.890	46.640	47.270	46.530
1.1280	63.320	63.390	46.110	47.300	46.310

1.1320	62.140	63.190	47.800	46.730	48.340
1.1360	62.430	63.180	47.570	48.650	49.970
1.1400	61.960	63.470	50.100	51.690	51.620
1.1440	61.790	62.630	48.390	48.260	48.460
1.1480	61.010	62.320	46.990	46.670	47.970
1.1520	61.280	62.030	47.910	46.920	47.860
1.1560	61.490	61.510	46.190	47.610	48.000
1.1600	60.780	61.750	47.840	48.200	47.210
1.1640	59.570	61.820	47.260	48.660	46.920
1.1680	59.460	60.810	47.530	48.890	47.020
1.1720	58.990	61.410	46.530	48.200	47.080
1.1760	58.300	61.830	46.630	47.320	46.030
1.1800	57.780	62.030	46.430	47.280	46.760
1.1840	57.650	61.650	46.810	48.200	47.970
1.1880	57.390	61.410	47.850	48.010	47.380
1.1920	57.470	60.230	47.140	46.610	47.450
1.1960	57.500	60.800	47.940	46.580	49.970
1.2000	58.250	61.780	51.150	52.400	53.530
1.2040	57.710	61.190	46.080	48.570	48.890
1.2080	58.520	61.710	47.600	46.940	46.950
1.2120	58.760	61.930	47.950	47.440	47.840
1.2160	57.370	61.770	47.650	46.600	47.240
1.2200	57.270	61.260	47.330	47.540	47.150
1.2240	57.950	62.130	46.930	47.560	46.730
1.2280	58.160	61.700	45.380	47.820	47.330
1.2320	58.600	62.380	47.520	47.780	47.960
1.2360	58.840	62.780	47.800	49.060	47.330
1.2400	58.980	62.450	47.670	50.370	48.230
1.2440	58.220	62.260	48.210	50.260	48.100
1.2480	58.960	63.740	47.240	51.820	47.890
1.2520	58.820	64.080	46.260	52.260	48.050
1.2560	59.740	64.040	47.730	54.670	48.260
1.2600	59.740	64.360	45.660	47.390	48.470
1.2640	59.300	64.070	47.570	53.710	46.990
1.2680	59.840	63.870	46.950	54.310	47.550
1.2720	60.070	64.230	47.210	54.320	47.430
1.2760	60.410	64.390	46.930	55.880	46.840
1.2800	61.270	64.640	45.780	55.890	46.410
1.2840	61.070	64.130	45.920	56.640	46.380
1.2880	60.780	64.520	45.940	56.980	46.390
1.2920	61.100	65.780	47.620	57.770	47.350
1.2960	61.120	65.060	48.450	58.580	47.530
1.3000	61.290	65.230	48.050	59.420	48.550
1.3040	62.230	65.150	49.200	60.510	47.650
1.3080	61.980	65.950	50.890	61.190	47.700
1.3120	61.950	66.430	51.660	61.510	47.130
1.3160	62.410	66.060	54.050	62.850	52.060
1.3200	64.090	66.030	55.330	63.070	54.360
1.3240	62.750	65.940	52.540	62.820	48.260
1.3280	62.490	66.880	48.290	64.210	46.880
1.3320	62.440	66.940	48.890	64.360	46.790
1.3360	62.060	67.600	49.160	63.210	46.520
1.3400	62.430	67.230	45.140	62.840	46.590
1.3440	61.870	66.910	48.150	61.760	46.710
1.3480	62.090	66.980	48.570	61.890	47.290
1.3520	62.840	65.790	48.560	61.720	47.430
1.3560	62.940	66.670	47.810	60.100	47.150

1.3600	62.620	67.170	47.430	58.770	46.710
1.3640	62.820	66.640	48.890	58.320	46.320
1.3680	62.320	67.310	48.160	57.570	47.900
1.3720	62.350	66.880	46.500	56.220	46.740
1.3760	61.910	67.320	47.380	55.380	47.360
1.3800	61.930	67.030	48.160	54.960	48.820
1.3840	61.990	66.910	49.530	53.820	48.020
1.3880	62.430	66.750	47.380	52.060	45.980
1.3920	62.290	66.530	48.000	51.630	46.670
1.3960	62.600	67.400	48.290	51.270	47.700
1.4000	62.960	66.600	48.590	51.810	47.360
1.4040	61.760	66.700	47.940	54.180	47.960
1.4080	61.670	66.660	47.730	53.720	47.920
1.4120	62.030	66.920	49.490	53.230	47.400
1.4160	62.020	66.680	49.930	53.720	46.490
1.4200	61.130	66.720	51.930	54.060	47.590
1.4240	60.680	67.300	56.890	53.330	47.460
1.4280	60.530	67.250	61.860	52.410	47.220
1.4320	60.670	67.070	69.140	53.180	47.580
1.4360	60.630	66.700	75.580	53.760	50.550
1.4400	60.420	67.010	81.070	55.170	51.480
1.4440	59.960	66.620	81.630	54.320	47.310
1.4480	63.620	65.940	78.750	54.730	46.340
1.4520	63.040	64.830	72.580	55.850	47.620
1.4560	59.910	65.780	64.310	56.820	47.260
1.4600	60.330	66.160	59.690	56.980	46.480
1.4640	60.090	66.710	53.750	56.230	46.900
1.4680	59.450	66.450	51.230	55.610	47.380
1.4720	59.730	65.890	51.650	54.850	47.640
1.4760	59.470	66.510	51.400	53.730	47.970
1.4800	58.930	66.260	50.670	54.570	46.750
1.4840	58.320	66.330	49.050	55.430	46.600
1.4880	58.500	65.420	48.970	55.310	48.170
1.4920	59.110	66.050	51.810	55.270	48.190
1.4960	58.510	66.060	53.090	55.380	47.270
1.5000	58.200	65.210	51.100	55.140	47.430
1.5040	58.210	65.310	50.150	53.110	47.040
1.5080	58.160	65.090	47.920	52.660	46.620
1.5120	57.190	64.560	47.210	53.220	47.980
1.5160	57.420	63.980	47.450	54.570	47.620
1.5200	57.450	64.080	48.010	55.260	47.070
1.5240	56.880	64.010	48.740	53.050	46.750
1.5280	56.770	64.150	47.730	50.710	47.320
1.5320	56.930	63.820	46.320	50.910	46.940
1.5360	56.700	63.690	48.190	50.220	46.100
1.5400	56.600	63.580	50.890	45.080	46.930
1.5440	55.980	63.340	51.740	49.860	47.550
1.5480	54.970	63.620	57.250	53.350	47.380
1.5520	55.130	63.090	59.500	50.500	47.120
1.5560	54.910	63.710	61.700	49.870	45.410
1.5600	55.070	62.810	58.580	50.140	47.540
1.5640	54.660	62.330	48.330	48.100	47.210
1.5680	55.280	63.720	49.150	49.590	48.250
1.5720	55.430	64.000	47.980	48.240	47.290
1.5760	54.080	62.860	47.870	49.320	47.160
1.5800	54.560	63.460	48.110	49.170	45.170
1.5840	54.710	62.510	47.160	49.490	47.100

1.5880	55.110	62.110	48.910	49.130	46.940
1.5920	54.900	62.570	46.670	49.760	47.080
1.5960	53.840	62.090	46.460	49.980	47.400
1.6000	54.140	63.480	46.680	46.730	47.700
1.6040	54.920	63.540	46.650	47.600	47.070
1.6080	55.420	63.130	47.360	46.370	47.930
1.6120	56.350	63.380	48.820	48.770	49.050
1.6160	56.100	63.680	48.080	47.840	48.230
1.6200	55.110	63.400	43.010	47.700	48.430
1.6240	54.420	63.610	48.080	47.100	48.220
1.6280	55.030	63.930	47.740	46.600	47.780
1.6320	56.270	64.180	50.620	48.380	47.630
1.6360	56.430	65.090	50.490	48.380	47.540
1.6400	56.740	64.320	50.560	49.110	47.300
1.6440	55.610	65.280	51.270	50.000	47.620
1.6480	56.420	66.390	52.140	48.390	46.890
1.6520	57.310	65.500	53.750	48.310	47.380
1.6560	57.380	66.020	54.730	47.690	47.630
1.6600	57.330	65.930	53.620	47.370	46.990
1.6640	57.670	66.180	57.710	47.930	46.760
1.6680	57.090	66.360	55.390	48.900	45.290
1.6720	57.760	65.400	57.970	49.070	46.980
1.6760	58.260	66.090	58.490	46.700	47.100
1.6800	57.860	66.000	61.590	48.090	48.390
1.6840	57.670	66.840	58.970	48.510	47.460
1.6880	57.790	66.880	54.420	47.010	47.400
1.6920	57.970	66.570	52.430	50.200	47.150
1.6960	57.620	66.690	50.370	49.060	46.970
1.7000	57.290	67.590	48.940	49.050	46.870
1.7040	57.540	66.580	47.550	47.490	47.390
1.7080	58.300	66.010	47.780	48.400	48.980
1.7120	58.650	65.810	47.360	49.930	47.350
1.7160	58.510	66.470	46.770	48.370	47.320
1.7200	58.870	66.900	46.890	48.540	46.750
1.7240	58.180	66.490	47.050	46.010	47.060
1.7280	58.580	66.520	46.870	44.740	47.300
1.7320	59.700	66.900	47.350	48.300	46.900
1.7360	59.030	67.050	46.970	48.120	46.540
1.7400	57.620	66.980	48.410	48.330	47.500
1.7440	58.590	67.560	48.490	47.270	47.510
1.7480	58.440	67.140	47.020	47.780	46.530
1.7520	58.640	65.680	46.260	47.500	46.790
1.7560	59.320	67.220	46.510	47.470	46.810
1.7600	59.080	67.420	47.370	50.660	43.580
1.7640	59.320	67.210	48.060	48.040	47.350
1.7680	58.210	67.460	48.070	47.000	47.650
1.7720	58.720	67.130	47.060	46.910	46.700
1.7760	59.130	67.410	47.190	48.190	45.510
1.7800	58.910	66.700	47.700	47.090	48.230
1.7840	59.250	66.500	47.280	46.770	48.060
1.7880	58.330	66.110	47.650	47.030	47.620
1.7920	57.850	67.000	47.360	46.440	46.800
1.7960	57.840	67.580	47.040	47.250	46.940
1.8000	57.970	67.520	47.650	47.470	46.630
1.8040	58.260	68.400	48.350	47.550	47.140
1.8080	58.210	68.160	47.610	47.540	46.800
1.8120	58.710	67.680	46.740	47.730	47.050



1.8160	58.910	67.390	47.620	47.550	46.270
1.8200	58.660	68.360	44.800	47.590	46.640
1.8240	57.820	69.700	47.410	48.850	46.490
1.8280	57.980	67.850	46.860	47.740	47.630
1.8320	58.200	67.930	48.160	50.160	46.860
1.8360	57.970	68.160	47.390	48.210	47.420
1.8400	58.640	67.830	46.530	47.410	47.970
1.8440	57.590	67.650	47.510	47.420	48.270
1.8480	56.620	67.670	48.530	47.180	47.760
1.8520	56.960	67.720	47.920	47.620	48.680
1.8560	57.270	67.970	48.330	47.500	47.420
1.8600	56.950	66.950	47.640	47.860	47.680
1.8640	57.210	66.620	47.930	48.450	47.200
1.8680	57.310	67.500	48.120	47.650	47.240
1.8720	58.220	67.950	45.740	47.780	47.440
1.8760	57.810	67.330	46.200	49.150	47.140
1.8800	57.510	68.140	47.030	48.390	46.700
1.8840	56.920	68.100	47.290	49.150	47.400
1.8880	56.200	67.550	47.190	46.550	47.120
1.8920	55.250	66.740	46.630	47.000	47.310
1.8960	55.360	67.030	46.560	47.090	46.710
1.9000	56.720	66.980	48.170	47.210	46.220
1.9040	56.930	67.610	47.400	48.080	45.150
1.9080	56.130	67.860	47.250	48.900	48.010
1.9120	55.620	67.020	47.750	48.730	47.600
1.9160	54.950	65.960	47.370	48.640	47.350
1.9200	54.960	66.520	46.070	49.330	47.610
1.9240	56.010	66.310	47.400	49.060	47.330
1.9280	56.730	65.980	47.220	47.550	46.970
1.9320	56.090	66.260	47.890	48.430	47.460
1.9360	56.210	66.300	47.670	49.150	47.100
1.9400	56.240	65.770	47.400	50.210	47.470
1.9440	56.680	65.500	46.920	48.880	47.770
1.9480	56.150	65.260	47.230	48.960	48.230
1.9520	55.020	65.580	47.330	48.470	47.260
1.9560	55.850	66.130	47.010	46.970	47.280
1.9600	56.040	65.970	48.430	48.640	47.500
1.9640	55.910	66.400	47.740	49.550	47.000
1.9680	55.700	66.470	46.660	48.710	46.670
1.9720	56.050	66.380	47.910	49.610	46.320
1.9760	55.510	65.360	47.880	49.380	47.540
1.9800	55.670	66.240	47.620	50.640	47.220
1.9840	55.870	66.120	46.640	51.840	47.890
1.9880	55.150	65.650	46.730	52.940	47.660
1.9920	56.480	69.980	47.290	56.030	46.380
1.9960	80.990	127.39	47.510	64.350	48.270
2.0000	86.970	133.46	47.400	69.380	47.340
2.0040	80.990	127.49	47.100	64.240	46.490
2.0080	57.410	71.500	47.470	55.100	47.590
2.0120	55.840	66.250	47.270	51.680	47.830
2.0160	56.530	65.540	48.140	50.060	46.530
2.0200	56.500	64.560	47.290	50.200	46.490
2.0240	56.080	63.380	47.120	49.090	47.090
2.0280	55.260	63.210	47.070	47.260	46.530
2.0320	55.350	63.300	46.710	48.170	46.930
2.0360	56.260	63.380	45.980	48.160	46.790
2.0400	56.310	63.890	47.010	47.870	46.940

2.0440	56.140	64.280	48.140	46.590	47.190
2.0480	55.780	63.590	48.170	46.250	46.310
2.0520	56.250	64.040	47.750	47.390	46.150
2.0560	56.070	62.630	47.490	48.150	45.240
2.0600	56.020	63.370	46.740	48.840	47.670
2.0640	55.590	63.130	46.840	48.750	47.860
2.0680	54.990	64.330	47.510	46.690	47.390
2.0720	55.440	64.840	46.220	46.990	46.690
2.0760	55.910	65.800	46.610	46.750	47.730
2.0800	57.070	65.230	46.900	46.240	46.950
2.0840	56.400	64.940	47.050	46.890	46.520
2.0880	56.110	65.430	46.610	47.060	47.330
2.0920	55.100	65.030	46.980	48.340	47.200
2.0960	55.390	65.680	47.240	47.610	47.510
2.1000	55.190	65.200	47.300	46.890	47.050
2.1040	55.030	65.160	47.450	46.730	47.310
2.1080	55.280	65.720	48.720	46.850	47.630
2.1120	54.900	66.080	46.610	47.330	47.410
2.1160	54.490	65.100	47.260	47.890	47.860
2.1200	54.400	65.260	48.430	48.550	47.370
2.1240	54.290	66.240	48.240	47.440	47.190
2.1280	54.150	66.860	48.250	47.010	46.840
2.1320	53.600	66.370	46.810	47.690	47.670
2.1360	54.790	65.590	46.550	46.630	46.190
2.1400	54.040	66.340	46.610	47.350	46.950
2.1440	54.320	66.600	46.690	46.950	46.470
2.1480	54.630	65.830	47.290	47.610	46.480
2.1520	54.970	66.140	47.010	47.570	46.150
2.1560	54.890	66.050	47.340	46.150	47.020
2.1600	54.130	66.020	47.230	46.470	47.670
2.1640	53.040	66.150	46.150	47.300	48.410
2.1680	52.900	65.920	47.050	47.970	47.930
2.1720	52.780	65.930	46.950	47.840	47.070
2.1760	53.860	66.910	47.670	47.950	46.630
2.1800	55.160	67.270	47.640	47.310	47.600
2.1840	54.920	67.180	47.440	46.270	48.270
2.1880	53.490	65.940	47.450	48.940	47.050
2.1920	53.810	65.250	47.710	47.250	47.200
2.1960	53.950	66.080	47.500	47.270	47.610
2.2000	54.160	66.250	47.470	46.250	47.750
2.2040	54.940	66.670	47.450	46.300	47.960
2.2080	53.780	65.860	47.240	47.060	47.410
2.2120	53.550	65.830	46.790	47.770	46.640
2.2160	53.680	66.330	46.900	47.490	46.190
2.2200	55.070	65.770	47.870	47.260	46.980
2.2240	55.260	66.220	48.420	47.860	47.180
2.2280	53.690	66.650	47.490	47.430	47.260
2.2320	54.270	66.900	47.240	46.890	46.740
2.2360	54.320	67.970	47.630	46.650	46.920
2.2400	54.530	67.910	47.470	46.990	47.380
2.2440	54.830	67.010	47.280	47.220	48.010
2.2480	54.800	66.570	46.710	48.070	47.460
2.2520	53.800	66.040	47.720	47.970	46.450
2.2560	54.220	66.090	47.630	46.790	46.800
2.2600	55.120	66.650	47.610	47.320	47.750
2.2640	54.640	66.420	48.140	47.470	48.030
2.2680	54.800	67.320	47.140	47.750	47.920

2.2720	54.690	67.730	46.480	47.370	47.470
2.2760	54.800	67.940	47.890	46.570	47.270
2.2800	53.430	67.380	47.250	47.370	48.030
2.2840	54.680	67.780	47.410	47.120	48.800
2.2880	54.550	68.130	48.530	47.330	47.080
2.2920	55.320	68.410	47.810	47.030	46.150
2.2960	54.500	67.980	47.240	47.400	46.790
2.3000	55.220	68.200	46.780	47.930	46.290
2.3040	55.330	68.370	46.740	46.720	47.060
2.3080	55.680	68.060	47.420	47.130	47.770
2.3120	55.590	68.320	47.770	47.210	47.380
2.3160	55.550	68.070	47.350	46.810	47.380
2.3200	55.330	67.650	46.320	46.830	46.950
2.3240	55.410	67.430	46.950	47.320	47.050
2.3280	55.780	67.530	47.470	47.920	47.210
2.3320	55.910	67.030	47.460	48.100	47.190
2.3360	55.430	67.180	47.050	47.590	47.570
2.3400	54.650	67.010	46.840	48.080	46.060
2.3440	53.970	66.510	47.290	46.780	46.250
2.3480	53.790	65.550	46.700	47.190	46.070
2.3520	53.550	64.910	47.730	47.360	47.270
2.3560	53.160	63.860	47.200	48.020	47.240
2.3600	52.360	63.120	46.630	47.970	46.730
2.3640	51.890	63.070	46.960	47.980	45.670
2.3680	51.440	61.250	45.760	47.800	45.500
2.3720	50.470	60.290	47.150	47.630	47.170
2.3760	50.190	59.670	47.530	47.430	47.500
2.3800	51.190	59.410	46.530	47.380	47.770
2.3840	49.840	59.650	46.560	47.100	47.870
2.3880	49.300	59.560	46.790	47.410	47.080
2.3920	49.790	59.230	46.620	46.950	47.010
2.3960	50.740	58.790	46.360	46.980	47.100
2.4000	49.760	58.880	47.610	47.460	46.610
2.4040	48.730	59.030	47.160	48.650	46.990
2.4080	48.900	59.320	47.100	47.660	48.340
2.4120	50.360	60.400	46.830	47.400	46.690
2.4160	50.260	59.280	46.510	47.280	47.540
2.4200	50.260	60.050	46.480	46.390	46.690
2.4240	49.280	60.790	47.690	47.000	47.350
2.4280	49.960	61.790	46.610	47.570	47.650
2.4320	49.930	61.860	46.980	47.790	47.230
2.4360	49.840	60.430	45.640	47.680	47.080
2.4400	50.730	60.000	47.070	46.860	46.400
2.4440	50.930	60.810	47.040	47.640	47.960
2.4480	50.980	61.160	46.530	47.460	48.110
2.4520	51.040	61.380	46.910	46.810	46.700
2.4560	51.480	61.570	47.520	47.830	45.720
2.4600	50.910	61.530	47.460	47.770	46.970
2.4640	50.010	62.480	46.980	47.160	47.380
2.4680	50.650	62.790	47.500	47.580	46.820
2.4720	51.170	62.330	46.630	48.040	47.490
2.4760	50.530	62.850	47.400	47.660	46.700
2.4800	50.980	62.750	45.910	46.830	47.480
2.4840	51.330	63.200	46.500	48.360	47.530
2.4880	50.870	62.670	47.950	48.330	47.130
2.4920	47.730	62.850	47.550	48.070	47.330
2.4960	51.800	63.160	47.150	48.440	47.210

2.5000	51.270	63.190	46.210	48.630	46.990
2.5040	52.310	62.910	46.390	47.840	47.490
2.5080	52.290	62.830	47.120	49.170	47.800
2.5120	52.100	63.200	47.320	50.140	47.540
2.5160	50.260	63.990	47.130	48.690	47.820
2.5200	50.600	63.300	47.420	48.130	47.140
2.5240	52.250	63.690	47.520	48.180	47.570
2.5280	53.310	64.580	48.070	49.070	47.350
2.5320	52.270	64.340	48.460	49.860	47.100
2.5360	52.220	64.750	46.730	50.140	47.230
2.5400	52.540	65.020	46.900	50.750	46.810
2.5440	53.180	65.040	47.830	50.900	46.880
2.5480	53.430	64.250	47.570	51.440	46.810
2.5520	52.670	64.030	47.360	49.420	47.230
2.5560	53.410	64.690	47.110	49.090	46.210
2.5600	52.510	65.450	48.010	49.780	46.940
2.5640	52.240	66.200	46.710	49.900	47.380
2.5680	54.100	65.930	46.670	49.260	47.660
2.5720	53.240	65.100	50.230	49.510	47.260
2.5760	53.070	65.570	53.410	49.940	47.390
2.5800	54.320	66.040	48.740	50.870	47.630
2.5840	55.040	65.690	47.600	50.010	47.080
2.5880	54.610	65.790	47.380	50.810	47.190
2.5920	55.410	66.940	47.030	52.890	47.370
2.5960	55.410	67.400	45.850	53.730	46.450
2.6000	55.360	67.660	46.680	54.110	47.040
2.6040	55.750	68.270	47.250	54.640	46.730
2.6080	56.120	68.750	47.360	56.850	47.040
2.6120	55.750	68.180	47.240	56.930	48.060
2.6160	56.020	68.160	47.990	59.500	46.870
2.6200	57.680	68.250	47.250	60.460	46.750
2.6240	57.140	69.170	47.040	61.080	47.220
2.6280	57.750	69.270	46.650	62.920	47.450
2.6320	58.350	69.300	47.950	63.660	46.090
2.6360	57.520	68.890	47.550	64.260	47.120
2.6400	58.060	70.210	48.280	65.140	46.870
2.6440	59.060	70.340	47.620	65.840	47.520
2.6480	59.340	70.370	47.120	67.230	47.070
2.6520	59.930	70.600	47.400	67.170	47.830
2.6560	60.150	70.350	47.550	67.520	46.560
2.6600	60.410	69.010	47.700	68.430	46.670
2.6640	60.220	69.690	47.050	68.190	47.410
2.6680	59.540	68.950	47.070	68.990	47.580
2.6720	58.660	68.560	47.570	68.530	47.480
2.6760	56.880	67.520	47.030	66.980	47.840
2.6800	56.870	66.470	46.770	66.070	47.220
2.6840	55.760	65.890	46.830	65.810	47.290
2.6880	54.980	65.240	46.880	63.220	46.950
2.6920	55.050	64.920	47.160	61.840	47.460
2.6960	54.230	64.620	47.600	60.740	46.990
2.7000	52.950	63.480	48.360	59.480	47.340
2.7040	51.350	62.000	47.950	58.220	48.160
2.7080	50.260	61.370	47.080	57.130	48.440
2.7120	50.580	59.940	48.020	55.470	47.770
2.7160	49.540	58.590	47.080	52.400	46.630
2.7200	49.100	58.540	46.600	52.670	47.020
2.7240	49.220	57.570	46.710	51.820	48.060

2.7280	48.880	56.010	48.320	49.610	47.670
2.7320	48.310	56.260	47.740	48.920	47.010
2.7360	46.950	55.560	46.930	48.950	46.630
2.7400	47.050	54.830	46.400	49.690	46.190
2.7440	48.610	54.330	47.100	49.120	45.730
2.7480	46.040	54.390	47.490	48.810	47.990
2.7520	47.600	53.860	46.960	49.020	45.750
2.7560	48.280	54.520	47.990	49.050	47.390
2.7600	49.230	55.360	48.150	49.700	46.670
2.7640	48.390	55.030	48.630	49.120	47.510
2.7680	48.100	55.240	48.560	48.970	47.560
2.7720	48.760	55.410	49.260	48.310	46.420
2.7760	48.660	56.310	50.090	49.060	46.860
2.7800	49.040	56.540	48.060	49.110	46.990
2.7840	48.740	56.890	47.980	49.220	46.660
2.7880	48.680	56.990	47.550	49.310	47.660
2.7920	50.060	57.110	47.410	48.430	47.650
2.7960	50.190	57.520	47.460	48.420	47.280
2.8000	50.440	58.910	48.090	48.380	45.460
2.8040	50.210	59.200	47.650	48.350	47.060
2.8080	50.000	59.010	46.690	47.570	47.590
2.8120	49.130	58.550	47.200	48.680	47.080
2.8160	50.580	59.590	47.690	47.740	47.120
2.8200	49.850	60.130	47.300	47.570	47.520
2.8240	50.470	59.650	46.570	48.640	47.090
2.8280	50.520	60.680	46.230	48.670	47.180
2.8320	51.360	60.550	47.520	48.210	47.350
2.8360	51.370	61.810	47.240	49.060	46.860
2.8400	51.060	61.440	47.160	48.260	47.310
2.8440	51.470	60.900	47.640	48.890	46.430
2.8480	51.200	62.170	46.920	48.500	47.510
2.8520	52.210	62.060	48.240	49.260	47.560
2.8560	52.930	62.500	48.130	48.400	47.820
2.8600	51.980	63.460	47.730	48.240	48.180
2.8640	52.250	62.290	47.530	49.060	48.760
2.8680	53.220	62.780	47.160	49.230	46.820
2.8720	53.030	63.170	47.910	49.650	46.640
2.8760	53.120	62.970	48.750	48.800	47.320
2.8800	53.380	64.060	48.140	48.980	46.890
2.8840	53.990	63.590	48.050	49.090	47.230
2.8880	55.220	63.240	48.690	49.640	47.570
2.8920	55.460	64.260	49.160	50.070	48.200
2.8960	54.810	64.780	48.470	50.660	48.190
2.9000	54.130	65.480	48.410	51.050	46.840
2.9040	54.160	66.020	48.550	51.760	45.760
2.9080	55.790	65.650	47.890	51.710	47.040
2.9120	55.500	65.960	47.620	51.850	47.130
2.9160	56.240	66.270	46.690	52.190	47.630
2.9200	56.630	66.510	47.600	53.470	46.840
2.9240	57.380	66.820	48.200	53.150	47.050
2.9280	56.430	66.970	47.810	53.220	47.140
2.9320	56.520	67.870	46.370	52.870	47.430
2.9360	58.100	68.180	48.290	52.040	47.170
2.9400	58.630	67.720	48.830	53.120	48.680
2.9440	59.620	68.420	48.610	54.540	47.530
2.9480	59.920	68.230	50.850	54.650	45.340
2.9520	59.790	68.560	48.850	55.460	46.430

2.9560	61.240	67.970	48.460	55.380	46.290
2.9600	62.920	68.070	49.380	55.260	46.510
2.9640	63.740	68.230	49.930	55.420	46.310
2.9680	65.190	68.090	50.050	55.740	47.590
2.9720	65.920	68.300	50.060	55.660	45.800
2.9760	65.580	67.910	51.520	55.030	45.730
2.9800	66.880	67.400	52.380	54.950	46.970
2.9840	66.760	66.930	57.480	54.450	46.750
2.9880	66.640	66.030	63.840	54.100	47.940
2.9920	65.530	64.670	75.740	52.430	47.990
2.9960	104.08	63.130	130.07	52.030	46.510
3.0000	110.17	62.780	136.16	52.420	49.130
3.0040	104.21	61.940	130.22	51.340	47.530
3.0080	63.320	62.110	75.890	51.970	46.540
3.0120	63.320	60.460	63.940	49.360	47.490
3.0160	62.450	59.490	58.810	50.320	47.800
3.0200	61.800	59.040	52.800	49.350	46.720
3.0240	59.810	58.460	49.870	48.930	46.730
3.0280	58.990	57.880	48.880	49.910	47.250
3.0320	57.520	56.100	48.730	49.090	46.990
3.0360	56.340	55.880	48.660	49.300	47.320
3.0400	55.400	56.020	47.960	48.880	47.810
3.0440	52.650	56.850	47.640	48.550	46.470
3.0480	52.500	56.430	47.380	48.950	46.720
3.0520	51.570	56.450	47.590	48.630	46.280
3.0560	51.180	56.390	48.070	49.640	47.420
3.0600	50.930	55.550	48.810	51.250	47.900
3.0640	49.640	55.840	47.420	48.810	47.730
3.0680	49.910	56.190	47.560	48.460	47.530
3.0720	50.460	56.170	43.500	48.590	47.610
3.0760	49.820	56.180	46.620	49.130	47.460
3.0800	49.360	56.690	47.710	48.960	46.970
3.0840	50.060	57.320	47.530	48.560	47.570
3.0880	48.850	57.490	46.680	48.170	47.400
3.0920	50.070	57.450	47.790	47.690	47.120
3.0960	49.340	57.870	48.600	49.420	47.420
3.1000	50.000	57.480	49.820	49.610	46.550
3.1040	50.300	58.530	51.760	48.330	47.740
3.1080	49.750	58.690	53.010	48.350	47.520
3.1120	50.330	58.520	53.700	48.490	47.030
3.1160	50.160	58.630	53.690	48.620	46.670
3.1200	50.830	59.330	53.420	49.240	45.750
3.1240	50.480	59.710	51.760	47.100	46.680
3.1280	50.560	59.530	50.150	48.210	46.780
3.1320	50.660	59.810	49.000	48.600	48.200
3.1360	50.770	59.700	47.670	47.860	49.000
3.1400	51.400	60.260	47.870	48.570	47.880
3.1440	52.290	61.460	47.280	49.420	47.060
3.1480	51.550	61.790	47.030	48.970	47.140
3.1520	51.700	62.140	47.940	47.490	46.360
3.1560	52.010	62.230	47.890	50.080	46.590
3.1600	52.300	62.220	47.650	48.820	45.690
3.1640	52.340	62.480	48.560	47.770	46.610
3.1680	51.250	63.090	48.090	49.290	46.930
3.1720	52.480	63.170	47.120	48.470	46.100
3.1760	54.270	64.200	47.300	48.440	47.870
3.1800	53.360	64.430	47.510	49.540	46.940

3.1840	52.190	65.010	47.720	49.790	46.450
3.1880	51.990	64.360	47.900	49.540	47.280
3.1920	52.910	65.020	47.210	49.320	47.740
3.1960	52.880	65.580	47.760	49.920	46.860
3.2000	52.600	65.280	48.050	48.630	47.080
3.2040	53.120	64.220	47.990	49.630	47.280
3.2080	52.950	63.900	47.480	50.200	46.860
3.2120	52.380	64.040	47.570	50.450	47.260
3.2160	52.040	64.670	48.000	50.760	46.320
3.2200	52.430	64.620	47.530	50.050	47.410
3.2240	52.850	63.500	48.060	49.490	47.370
3.2280	51.930	63.320	48.150	48.300	47.420
3.2320	51.390	62.820	46.910	48.490	47.500
3.2360	51.560	62.470	48.060	50.020	47.200
3.2400	51.450	61.950	48.910	50.020	47.160
3.2440	50.510	61.130	47.570	49.920	46.950
3.2480	50.090	59.980	47.730	49.950	46.050
3.2520	48.530	60.100	48.830	49.290	45.950
3.2560	48.650	60.850	48.550	49.130	46.370
3.2600	48.810	59.740	47.840	50.220	47.380
3.2640	48.650	58.880	47.630	50.260	46.500
3.2680	48.550	58.120	47.910	50.270	45.720
3.2720	48.720	58.090	47.940	50.110	46.070
3.2760	48.650	56.840	47.790	49.040	45.130
3.2800	48.340	56.210	46.920	49.440	46.600
3.2840	47.990	55.570	47.980	48.660	46.630
3.2880	48.190	55.550	47.060	48.850	47.670
3.2920	47.970	54.950	47.190	50.680	48.250
3.2960	48.420	55.400	48.080	49.970	45.680
3.3000	48.480	55.430	47.400	49.720	46.740
3.3040	47.670	54.650	46.650	48.940	47.110
3.3080	47.690	53.990	47.600	49.230	45.700
3.3120	48.360	54.730	47.410	50.270	47.370
3.3160	48.010	54.420	47.640	51.220	47.090
3.3200	46.670	54.200	47.680	53.490	46.670
3.3240	47.090	53.580	46.070	55.140	47.620
3.3280	46.970	54.760	47.340	56.780	47.930
3.3320	47.220	55.010	47.650	53.030	47.540
3.3360	48.200	54.740	47.020	51.540	47.650
3.3400	48.990	55.000	46.460	49.910	46.750
3.3440	48.400	56.360	47.360	51.420	45.740
3.3480	47.830	57.040	46.930	49.920	47.860
3.3520	47.780	56.840	47.060	50.240	47.640
3.3560	47.260	56.680	46.760	49.520	47.110
3.3600	47.730	57.460	47.500	50.270	47.610
3.3640	47.870	59.160	47.410	50.320	47.360
3.3680	48.640	58.900	47.130	49.900	46.850
3.3720	48.710	58.060	46.050	50.540	48.230
3.3760	48.930	58.260	47.620	50.220	47.900
3.3800	47.410	59.370	46.260	49.900	47.140
3.3840	49.660	59.890	46.550	48.320	47.490
3.3880	49.350	60.320	47.130	48.920	46.950
3.3920	49.440	60.100	48.500	49.670	46.900
3.3960	49.310	60.420	47.850	51.650	47.460
3.4000	50.370	60.670	47.090	52.860	47.670
3.4040	50.160	63.610	48.940	50.740	47.120
3.4080	50.940	64.120	46.010	48.540	47.200

3.4120	51.140	63.800	47.090	50.960	47.490
3.4160	51.360	64.400	47.690	50.160	49.680
3.4200	51.410	64.370	57.180	53.380	47.680
3.4240	51.420	64.230	64.660	47.690	47.380
3.4280	52.580	64.900	53.020	52.400	46.540
3.4320	52.370	65.810	47.780	52.610	46.640
3.4360	53.150	66.650	47.370	48.230	48.130
3.4400	52.570	66.780	47.210	51.500	48.150
3.4440	53.360	67.350	46.570	52.630	47.490
3.4480	53.860	67.870	47.300	53.220	46.750
3.4520	54.970	67.910	46.890	50.950	46.700
3.4560	54.930	68.010	46.990	53.970	46.390
3.4600	54.340	67.990	47.050	55.010	47.030
3.4640	54.690	67.920	47.330	55.530	46.720
3.4680	54.100	67.730	46.360	53.610	47.140
3.4720	53.710	66.500	47.560	53.030	47.410
3.4760	52.960	66.700	47.310	52.790	47.210
3.4800	53.230	66.720	47.540	52.210	44.170
3.4840	53.420	65.860	47.340	52.930	46.350
3.4880	53.350	65.100	49.260	52.190	47.410
3.4920	52.650	64.100	46.650	52.680	46.610
3.4960	52.030	63.280	48.530	52.760	46.530
3.5000	51.910	63.040	47.300	55.330	47.670
3.5040	51.140	62.930	46.580	53.650	46.390
3.5080	50.240	62.140	45.960	49.730	47.020
3.5120	50.250	61.300	46.820	48.640	47.050
3.5160	49.830	60.030	45.690	52.470	47.480
3.5200	50.250	58.680	47.230	55.720	46.980
3.5240	50.200	59.450	46.310	51.680	46.760
3.5280	48.380	59.300	48.750	48.930	46.690
3.5320	48.790	57.330	47.500	48.900	46.570
3.5360	48.670	57.590	46.970	49.290	46.860
3.5400	48.520	57.360	47.280	49.070	47.410
3.5440	48.670	56.200	45.250	48.310	47.620
3.5480	48.310	55.360	47.580	48.340	47.600
3.5520	47.890	55.100	46.920	47.890	47.940
3.5560	47.830	54.650	47.030	48.750	47.650
3.5600	47.070	54.340	46.820	48.920	46.950
3.5640	47.720	53.750	46.310	48.850	46.520
3.5680	48.310	53.490	46.770	47.120	45.860
3.5720	47.750	51.890	46.550	45.220	45.990
3.5760	47.440	51.740	46.650	55.880	47.590
3.5800	48.560	51.250	46.040	55.910	47.020
3.5840	46.760	50.150	47.550	44.790	46.950
3.5880	46.720	49.590	47.620	47.050	47.690
3.5920	46.730	50.790	47.960	48.060	48.110
3.5960	47.300	50.850	47.380	47.240	46.510
3.6000	47.800	50.160	47.990	49.120	47.220
3.6040	47.810	50.710	47.640	47.300	47.890
3.6080	47.040	49.610	46.940	47.290	47.350
3.6120	46.720	50.120	46.630	47.300	47.690
3.6160	47.030	50.460	47.210	47.790	47.880
3.6200	48.220	50.360	47.450	47.920	47.630
3.6240	47.350	50.490	47.320	46.780	47.260
3.6280	46.530	51.020	45.710	45.260	47.480
3.6320	47.230	51.930	46.340	46.810	47.750
3.6360	47.670	52.420	47.230	46.000	47.680



3.6400	48.440	52.500	46.240	49.090	47.550
3.6440	47.360	52.570	46.830	47.560	48.000
3.6480	47.110	52.420	47.680	47.440	47.480
3.6520	46.730	52.940	47.740	47.170	47.200
3.6560	47.520	54.430	45.460	47.590	47.660
3.6600	46.910	55.670	45.850	46.740	46.630
3.6640	46.080	56.280	47.650	47.620	46.930
3.6680	47.100	56.910	46.870	45.130	47.900
3.6720	48.190	56.730	46.990	47.080	47.280
3.6760	49.160	56.750	47.500	46.100	47.640
3.6800	50.180	57.510	46.310	46.440	46.530
3.6840	46.500	57.490	47.250	47.280	47.230
3.6880	48.330	58.500	45.550	47.920	47.690
3.6920	48.040	59.670	47.840	47.470	47.320
3.6960	48.720	60.350	47.140	47.630	47.370
3.7000	49.700	60.950	47.640	48.200	47.690
3.7040	49.280	61.830	46.900	48.020	46.150
3.7080	49.150	62.850	47.130	48.930	47.350
3.7120	50.120	63.560	47.750	49.310	43.260
3.7160	50.020	64.840	47.670	49.480	49.280
3.7200	52.050	65.670	47.550	47.860	47.840
3.7240	52.400	66.240	47.030	50.630	46.990
3.7280	53.120	66.490	47.760	49.910	46.750
3.7320	54.560	66.300	47.570	45.760	48.660
3.7360	55.690	67.710	47.050	50.900	46.970
3.7400	55.370	69.100	47.320	52.080	45.140
3.7440	54.710	69.180	46.850	50.730	47.670
3.7480	55.690	69.360	46.900	50.940	46.400
3.7520	55.640	69.640	45.110	51.410	47.170
3.7560	55.960	69.260	47.360	51.640	46.510
3.7600	55.750	69.080	47.390	57.740	47.020
3.7640	55.430	68.370	45.800	55.990	47.390
3.7680	54.030	67.900	46.620	51.700	46.430
3.7720	53.910	67.240	46.700	53.250	46.910
3.7760	53.430	66.270	45.650	51.550	47.980
3.7800	53.290	65.740	48.040	50.600	47.770
3.7840	53.540	65.050	47.000	50.020	47.050
3.7880	52.010	63.800	47.440	45.710	45.860
3.7920	51.290	63.850	47.600	43.290	47.120
3.7960	50.540	63.050	47.390	45.510	46.200
3.8000	51.320	63.290	47.080	43.700	46.820
3.8040	51.060	62.490	47.860	34.250	46.510
3.8080	50.080	62.630	47.470	42.000	45.370
3.8120	48.850	63.180	46.700	45.020	46.300
3.8160	48.590	61.800	45.510	45.340	46.480
3.8200	47.530	60.480	46.530	49.830	47.510
3.8240	48.540	60.680	45.510	47.950	47.180
3.8280	48.600	60.350	47.070	48.450	46.800
3.8320	49.170	59.990	47.320	45.250	47.140
3.8360	47.970	59.480	46.710	42.950	47.910
3.8400	45.900	57.940	46.720	51.030	47.500
3.8440	49.200	57.820	47.420	47.960	47.470
3.8480	48.700	56.810	47.470	45.390	47.410
3.8520	47.770	55.880	47.100	45.140	47.200
3.8560	49.190	55.380	45.940	45.240	47.400
3.8600	48.450	56.410	47.130	49.380	47.810
3.8640	47.500	56.000	47.120	45.070	45.670

3.8680	46.950	55.220	46.930	48.070	47.000
3.8720	48.220	54.800	47.090	47.380	45.840
3.8760	48.940	54.420	46.210	47.450	47.660
3.8800	48.430	53.280	47.120	47.960	48.110
3.8840	47.090	53.770	46.600	47.600	47.450
3.8880	47.970	54.000	46.660	47.100	46.950
3.8920	47.490	53.660	47.710	49.170	47.390
3.8960	47.520	52.020	47.800	52.910	47.760
3.9000	47.720	52.550	48.350	48.600	47.280
3.9040	47.300	52.610	47.010	47.490	46.540
3.9080	47.840	51.530	46.830	47.800	47.650
3.9120	46.740	50.750	46.740	48.470	47.460
3.9160	46.530	51.100	47.760	50.320	47.610
3.9200	47.040	50.810	47.420	50.170	47.130
3.9240	47.800	49.190	47.010	52.010	47.160
3.9280	47.200	48.690	47.150	49.980	47.610
3.9320	46.100	48.730	46.950	50.820	46.430
3.9360	47.390	49.030	46.650	55.860	46.670
3.9400	46.780	49.230	47.040	55.490	46.400
3.9440	46.550	48.860	48.300	47.520	46.920
3.9480	47.210	49.200	46.310	56.220	47.430
3.9520	45.850	49.840	46.430	52.840	47.850
3.9560	45.340	49.710	46.230	52.920	47.710
3.9600	46.710	49.480	47.730	57.910	47.980
3.9640	47.210	49.730	48.050	57.010	48.600
3.9680	46.030	50.670	47.220	60.290	47.200
3.9720	47.930	51.250	47.470	60.920	47.790
3.9760	48.100	51.610	47.030	63.220	45.620
3.9800	47.890	53.090	46.750	63.090	47.380
3.9840	47.230	54.060	47.550	67.020	47.760
3.9880	49.510	55.210	47.320	71.160	46.820
3.9920	49.900	59.740	47.450	80.010	47.230
3.9960	69.200	105.43	46.970	131.64	47.210
4.0000	75.450	111.58	47.580	137.76	46.210
4.0040	69.770	105.72	46.840	131.84	47.500
4.0080	49.920	62.580	46.220	80.810	47.720
4.0120	50.570	60.230	50.210	73.250	47.240
4.0160	50.820	60.610	47.570	71.580	46.480
4.0200	49.970	61.040	46.510	70.110	46.630
4.0240	50.020	61.690	47.540	71.420	47.230
4.0280	46.690	62.420	47.910	71.520	48.140
4.0320	51.240	63.310	47.490	71.350	47.730
4.0360	51.540	64.250	46.770	70.990	47.220
4.0400	52.040	64.740	46.830	69.160	47.450
4.0440	51.260	65.330	47.660	70.180	47.770
4.0480	53.460	66.420	48.150	69.870	46.560
4.0520	54.940	67.020	46.600	69.060	46.990
4.0560	54.190	67.460	47.230	68.360	47.170
4.0600	54.620	67.820	47.760	68.600	47.070
4.0640	53.710	67.840	47.540	56.460	47.760
4.0680	53.830	67.100	46.350	62.230	47.060
4.0720	53.500	67.740	47.020	59.910	46.790
4.0760	52.920	67.600	47.480	63.500	48.650
4.0800	52.320	65.510	47.670	64.740	47.960
4.0840	52.020	64.850	46.830	59.240	45.710
4.0880	51.140	64.340	47.620	56.140	47.390
4.0920	50.180	62.760	47.500	53.830	47.360

4.0960	49.470	62.480	48.230	54.250	47.740
4.1000	49.440	62.860	47.740	49.090	46.040
4.1040	48.350	62.310	47.760	54.880	46.620
4.1080	48.170	62.160	47.620	42.340	47.640
4.1120	49.520	61.210	47.400	42.730	47.600
4.1160	49.580	61.250	47.190	49.770	47.820
4.1200	49.300	59.900	46.010	49.190	47.430
4.1240	49.110	59.170	47.460	43.930	47.120
4.1280	49.940	58.680	46.830	45.390	47.950
4.1320	49.870	58.770	46.690	49.130	47.130
4.1360	48.630	58.790	47.280	51.170	47.480
4.1400	45.760	57.840	47.040	46.230	49.400
4.1440	46.830	57.680	46.410	47.040	50.070
4.1480	49.080	57.410	46.100	48.830	47.740
4.1520	47.740	57.620	47.300	48.250	48.000
4.1560	47.430	57.650	47.590	50.390	46.950
4.1600	48.010	56.360	46.500	49.160	46.400
4.1640	48.570	55.750	46.870	49.360	46.570
4.1680	49.170	56.020	47.730	48.240	47.930
4.1720	48.660	55.870	47.480	47.250	47.480
4.1760	48.660	55.490	47.610	47.540	46.700
4.1800	47.320	55.170	47.590	49.810	48.390
4.1840	47.440	54.790	47.330	50.120	47.340
4.1880	48.020	55.530	47.820	48.620	47.420
4.1920	47.870	55.540	48.350	48.240	47.300
4.1960	48.070	54.500	47.690	47.730	48.780
4.2000	47.470	54.660	46.550	47.020	48.480
4.2040	47.150	53.350	46.810	48.060	47.340
4.2080	47.800	52.920	47.920	47.740	48.400
4.2120	46.910	52.900	47.650	48.360	47.330
4.2160	47.140	52.980	46.570	48.080	47.830
4.2200	47.570	52.480	46.710	45.270	47.490
4.2240	46.280	52.000	46.910	48.450	48.010
4.2280	46.550	52.930	46.810	49.340	47.100
4.2320	47.790	53.130	45.270	48.140	47.030
4.2360	46.970	50.860	48.490	47.700	48.050
4.2400	46.760	50.890	47.540	45.940	47.570
4.2440	46.680	50.750	47.470	47.000	46.660
4.2480	46.910	51.160	47.130	47.990	47.260
4.2520	46.190	51.260	46.940	48.000	46.930
4.2560	46.810	50.930	46.210	47.000	46.750
4.2600	46.680	51.320	46.480	47.600	45.720
4.2640	47.190	50.730	47.500	47.160	46.690
4.2680	47.470	50.270	47.820	47.370	46.980
4.2720	47.060	49.860	47.260	46.780	46.720
4.2760	47.680	49.450	45.870	45.340	46.790
4.2800	47.690	48.890	47.660	47.840	47.630
4.2840	48.100	50.210	46.700	48.290	48.030
4.2880	47.310	50.910	47.950	47.530	47.710
4.2920	47.010	49.710	47.350	48.760	46.620
4.2960	47.350	50.000	47.130	48.780	48.460
4.3000	47.280	50.810	46.810	49.040	48.340
4.3040	48.160	50.820	48.710	48.150	47.940
4.3080	47.890	51.030	48.230	48.570	46.950
4.3120	48.050	52.100	48.710	47.990	47.770
4.3160	47.930	52.550	50.550	49.230	48.270
4.3200	48.020	53.630	50.480	47.400	46.820

4.3240	47.130	54.630	47.080	48.370	46.840
4.3280	47.930	54.770	47.850	47.960	46.740
4.3320	48.350	56.140	44.930	48.330	48.210
4.3360	48.190	57.520	48.310	49.340	47.730
4.3400	48.680	57.730	47.660	49.050	48.350
4.3440	48.520	59.360	47.610	46.050	48.990
4.3480	48.390	60.620	48.890	46.010	48.360
4.3520	49.600	59.920	47.870	48.860	48.070
4.3560	48.670	62.250	47.870	50.440	47.460
4.3600	49.220	62.960	48.590	51.930	47.240
4.3640	49.240	62.320	49.130	51.330	46.860
4.3680	49.410	62.520	48.960	47.920	47.060
4.3720	49.600	62.770	48.820	48.020	47.320
4.3760	42.330	62.130	47.890	48.760	48.640
4.3800	50.350	62.280	48.390	49.190	46.080
4.3840	48.160	61.770	48.500	48.390	47.790
4.3880	49.710	61.500	47.700	50.570	47.910
4.3920	51.920	60.770	47.840	49.590	48.000
4.3960	48.820	61.160	48.970	48.110	47.580
4.4000	48.250	60.570	47.080	47.610	46.240
4.4040	47.540	59.630	46.540	47.490	48.760
4.4080	48.090	59.160	48.170	49.120	45.880
4.4120	48.520	58.880	48.610	48.010	46.680
4.4160	47.820	57.960	46.620	48.600	47.800
4.4200	47.990	57.690	47.140	58.600	47.150
4.4240	47.860	58.810	47.410	57.610	46.930
4.4280	49.240	58.450	46.950	47.700	46.100
4.4320	48.780	57.910	48.190	48.520	47.040
4.4360	47.730	58.020	46.960	48.680	48.370
4.4400	47.580	57.950	50.720	49.120	47.840
4.4440	47.830	56.900	52.200	46.670	48.040
4.4480	47.110	56.590	55.120	49.230	47.140
4.4520	47.390	55.570	49.040	42.190	47.760
4.4560	46.580	55.900	47.790	48.010	47.540
4.4600	47.980	56.310	47.370	47.230	47.950
4.4640	47.860	55.330	48.230	36.690	47.100
4.4680	47.870	54.870	47.710	50.300	46.580
4.4720	48.750	55.080	46.460	49.370	47.470
4.4760	48.470	54.880	48.690	46.890	47.440
4.4800	47.440	53.570	42.830	49.960	47.580
4.4840	47.640	53.900	48.190	48.820	47.860
4.4880	47.560	54.470	48.320	47.500	46.630
4.4920	47.530	53.690	48.200	48.370	46.680
4.4960	47.870	53.940	48.320	47.310	46.510
4.5000	47.360	54.120	44.040	47.690	47.150
4.5040	46.720	53.700	48.020	50.210	46.810
4.5080	46.820	53.660	47.730	47.630	47.810
4.5120	47.640	54.090	48.540	47.690	47.360
4.5160	48.330	53.470	47.790	48.770	47.690
4.5200	47.770	53.500	47.060	46.760	48.210
4.5240	48.300	53.720	47.030	37.660	47.660
4.5280	47.060	53.800	47.940	47.550	47.350
4.5320	47.880	53.690	48.520	47.520	47.370
4.5360	47.620	53.400	48.100	47.130	47.300
4.5400	47.310	52.560	51.270	47.840	47.580
4.5440	47.020	52.980	54.010	48.820	46.920
4.5480	47.990	52.970	59.440	48.520	46.240

4.5520	49.280	51.990	64.660	47.550	46.560
4.5560	47.260	51.830	67.900	47.510	47.590
4.5600	47.000	52.660	67.120	49.090	47.910
4.5640	47.470	53.170	60.100	42.930	46.950
4.5680	47.250	52.180	56.560	48.870	47.870
4.5720	47.770	52.020	51.090	49.760	46.710
4.5760	47.660	51.760	50.030	46.940	46.510
4.5800	48.190	50.130	47.760	50.960	46.440
4.5840	48.130	50.850	47.420	50.310	47.180
4.5880	48.090	51.710	46.700	46.240	46.820
4.5920	47.950	52.170	47.440	46.350	47.190
4.5960	47.660	52.680	47.270	47.300	46.720
4.6000	47.970	52.050	47.780	42.270	47.130
4.6040	48.250	51.700	47.440	45.880	47.030
4.6080	47.340	51.460	47.000	47.420	47.000
4.6120	46.820	51.910	47.170	50.130	47.610
4.6160	47.690	52.140	48.400	50.550	48.180
4.6200	46.620	52.980	47.220	47.580	47.390
4.6240	46.300	53.610	46.650	49.810	47.310
4.6280	46.180	51.950	47.070	42.770	47.300
4.6320	46.860	53.110	46.970	46.070	47.660
4.6360	47.510	54.040	47.280	48.340	48.150
4.6400	47.010	54.340	47.580	49.210	47.130
4.6440	47.100	54.360	47.370	45.690	47.050
4.6480	47.570	55.900	46.350	51.490	46.880
4.6520	48.250	56.710	48.010	52.760	47.210
4.6560	47.960	56.160	48.260	50.220	46.850
4.6600	47.970	56.220	48.690	52.840	47.090
4.6640	48.160	56.370	49.270	52.770	47.050
4.6680	46.530	55.690	44.070	48.310	46.960
4.6720	47.990	55.310	46.320	52.700	46.930
4.6760	48.190	55.660	48.290	48.010	47.040
4.6800	48.280	56.040	45.580	48.190	47.540
4.6840	48.110	55.640	46.030	51.190	46.540
4.6880	47.480	56.180	47.810	50.550	47.340
4.6920	47.190	55.600	47.450	46.660	46.960
4.6960	47.060	55.700	48.100	48.280	46.860
4.7000	46.930	56.410	47.340	47.630	46.420
4.7040	45.790	54.890	48.740	48.370	47.390
4.7080	46.920	54.740	47.260	47.390	47.650
4.7120	48.050	54.610	46.890	48.710	46.510
4.7160	45.980	54.560	46.560	47.430	46.020
4.7200	48.090	54.610	46.500	47.390	47.420
4.7240	47.640	54.610	47.160	49.290	46.890
4.7280	48.860	55.270	47.800	47.690	46.510
4.7320	48.070	54.540	45.980	47.900	47.450
4.7360	47.550	54.250	46.870	47.710	47.980
4.7400	48.280	54.600	47.590	48.100	49.170
4.7440	47.690	54.110	46.660	46.750	47.700
4.7480	47.370	54.070	47.410	47.750	47.730
4.7520	46.970	53.630	47.300	48.410	47.400
4.7560	48.540	53.000	47.090	48.280	47.790
4.7600	47.850	53.550	46.590	48.100	47.400
4.7640	47.230	53.300	47.680	46.770	46.730
4.7680	47.270	53.930	47.970	47.290	46.500
4.7720	47.570	53.980	47.710	47.660	47.100
4.7760	48.120	53.140	47.750	48.510	45.570

4.7800	48.300	53.360	47.340	47.480	48.250
4.7840	48.470	53.390	46.690	47.690	47.190
4.7880	47.630	53.780	46.800	48.040	47.530
4.7920	48.800	52.740	48.030	47.050	47.600
4.7960	47.590	52.960	47.210	46.660	46.550
4.8000	46.600	53.160	46.700	47.730	47.530
4.8040	46.720	52.320	47.590	47.200	46.550
4.8080	47.940	52.250	47.410	47.750	46.500
4.8120	48.190	51.780	46.800	48.710	46.620
4.8160	48.090	52.280	47.200	48.240	47.180
4.8200	46.030	51.930	47.250	47.370	47.490
4.8240	47.050	52.850	47.260	47.950	48.280
4.8280	47.460	51.730	47.790	47.650	43.720
4.8320	46.810	52.350	47.280	46.920	46.660
4.8360	44.790	52.040	47.260	46.900	47.250
4.8400	47.980	52.110	48.660	48.180	47.400
4.8440	46.540	52.270	47.990	48.870	46.260
4.8480	47.060	53.150	47.090	48.090	46.630
4.8520	46.630	53.070	47.630	48.390	47.980
4.8560	46.780	52.660	47.440	48.490	46.950
4.8600	46.260	52.640	48.030	47.450	47.610
4.8640	46.170	52.920	46.590	46.830	46.660
4.8680	48.020	53.810	47.760	46.530	46.650
4.8720	48.280	53.540	48.790	47.930	47.610
4.8760	47.870	53.110	48.490	45.740	46.670
4.8800	47.600	53.690	47.450	46.970	47.550
4.8840	47.920	55.050	47.820	46.790	46.230
4.8880	49.230	55.930	47.470	45.290	47.290
4.8920	46.930	55.110	46.070	47.840	47.560
4.8960	47.760	55.400	47.610	47.760	47.480
4.9000	48.840	54.190	49.000	48.040	46.360
4.9040	47.710	54.380	47.810	47.880	47.050
4.9080	47.760	54.290	47.060	47.460	47.280
4.9120	47.560	54.160	47.100	49.440	47.940
4.9160	47.780	54.340	47.060	47.340	47.140
4.9200	47.640	53.930	47.380	48.460	48.020
4.9240	47.920	53.860	47.190	47.720	48.150
4.9280	47.170	53.400	46.950	47.450	48.040
4.9320	47.340	53.750	46.940	47.340	48.490
4.9360	47.570	53.750	46.200	46.840	46.500
4.9400	47.650	53.460	47.180	48.220	46.780
4.9440	47.890	52.740	48.460	47.360	47.570
4.9480	47.050	53.230	47.830	46.720	47.290
4.9520	46.320	53.860	47.940	48.010	47.700
4.9560	47.930	53.490	47.910	47.330	48.110
4.9600	47.990	53.310	47.630	47.560	47.740
4.9640	48.020	53.810	48.460	46.640	47.250
4.9680	47.760	54.080	48.660	46.390	46.110
4.9720	45.770	53.490	47.870	46.410	46.420
4.9760	48.120	53.570	48.090	47.320	46.160
4.9800	47.160	53.420	47.540	47.640	46.350
4.9840	47.110	53.650	48.530	47.760	47.130
4.9880	46.780	53.970	47.560	48.200	47.170
4.9920	47.430	53.890	47.590	48.090	47.770
4.9960	71.250	52.930	47.270	48.490	46.920
5.0000	77.320	52.830	48.160	47.450	47.610
5.0040	71.480	53.610	47.570	46.880	46.770

5.0080	47.690	54.620	47.540	47.000	46.330
5.0120	46.740	53.860	46.930	47.460	48.160
5.0160	47.480	53.170	48.010	47.290	48.750
5.0200	47.410	52.610	47.170	46.760	47.220
5.0240	48.490	52.000	47.540	47.700	48.090
5.0280	47.660	52.060	46.760	46.790	47.210
5.0320	46.880	53.430	46.440	46.430	44.060
5.0360	47.290	52.740	47.120	47.620	47.840
5.0400	47.430	53.410	48.170	47.770	48.320
5.0440	48.020	52.710	48.070	47.930	48.410
5.0480	48.890	53.910	46.350	46.430	47.520
5.0520	47.510	53.500	46.890	47.640	47.060
5.0560	47.640	53.590	46.650	47.580	47.220
5.0600	48.540	53.030	47.620	47.560	48.150
5.0640	49.110	53.450	47.190	47.330	47.120
5.0680	48.370	53.340	47.990	47.460	47.640
5.0720	47.400	52.720	48.130	44.500	47.000
5.0760	47.440	53.370	48.810	47.990	46.890
5.0800	47.580	53.200	48.750	47.840	46.290
5.0840	48.120	52.430	48.180	48.200	47.040
5.0880	47.650	52.990	47.610	47.490	47.010
5.0920	46.810	53.060	47.830	47.520	47.270
5.0960	47.660	52.870	47.080	48.570	44.670
5.1000	47.020	52.650	46.840	48.060	47.060
5.1040	47.730	53.370	47.300	47.270	47.300
5.1080	48.300	53.500	47.970	46.900	47.240
5.1120	47.490	53.900	46.370	47.530	47.790
5.1160	48.300	54.510	45.570	47.240	48.080
5.1200	48.610	54.160	46.210	46.760	47.270
5.1240	47.470	53.440	47.340	47.420	46.860
5.1280	47.920	52.380	47.820	48.080	46.640
5.1320	47.840	52.310	49.240	47.470	45.050
5.1360	47.990	52.800	47.640	47.890	46.910
5.1400	47.820	52.630	47.750	47.580	48.140
5.1440	47.970	52.030	47.880	47.940	47.790
5.1480	47.580	51.720	47.460	47.470	47.800
5.1520	47.940	51.180	46.950	46.820	47.830
5.1560	48.090	51.270	46.900	46.910	46.690
5.1600	48.370	51.140	47.510	48.000	46.450
5.1640	47.230	52.220	47.790	47.410	40.390
5.1680	46.160	51.720	46.980	46.940	46.090
5.1720	46.690	51.340	47.110	47.500	47.860
5.1760	47.970	51.220	48.300	46.940	47.200
5.1800	47.420	51.500	48.040	47.330	47.640
5.1840	47.320	50.760	47.060	46.650	47.530
5.1880	47.270	51.220	48.010	47.380	48.210
5.1920	47.520	51.350	47.350	47.850	47.310
5.1960	46.800	51.820	46.770	46.970	48.050
5.2000	46.580	51.620	46.640	47.480	48.140
5.2040	47.670	51.320	47.180	47.190	47.820
5.2080	47.990	51.390	47.990	47.210	48.170
5.2120	46.940	51.030	47.020	46.420	47.600
5.2160	47.290	51.860	46.850	45.740	47.110
5.2200	47.780	51.150	46.520	46.070	46.950
5.2240	47.020	51.450	46.430	47.190	47.180
5.2280	46.380	52.250	47.650	46.680	47.420
5.2320	47.090	51.340	47.310	46.760	47.670

5.2360	46.840	51.620	47.600	47.410	46.890
5.2400	47.280	52.010	47.750	47.540	44.090
5.2440	47.570	51.430	47.440	47.570	47.360
5.2480	48.260	51.440	43.090	47.540	46.230
5.2520	48.120	52.370	46.270	47.160	47.170
5.2560	46.300	53.050	47.830	47.140	47.740
5.2600	48.360	52.220	46.480	46.250	47.660
5.2640	48.370	53.080	47.000	46.640	47.150
5.2680	47.500	52.730	48.440	47.450	47.560
5.2720	47.570	52.400	47.210	47.020	46.470
5.2760	47.780	52.170	46.790	47.760	46.490
5.2800	47.710	51.320	48.080	47.310	46.840
5.2840	47.400	51.800	48.070	47.180	47.120
5.2880	47.580	52.290	46.820	49.180	47.330
5.2920	47.280	53.410	46.730	49.280	47.790
5.2960	48.170	52.440	46.970	48.770	47.270
5.3000	47.480	52.890	46.870	48.300	48.100
5.3040	46.240	52.250	46.650	47.990	47.640
5.3080	46.180	52.570	47.140	48.150	47.200
5.3120	46.050	52.550	48.610	49.710	46.050
5.3160	48.030	52.510	48.830	50.570	46.780
5.3200	47.580	53.060	47.950	50.510	47.520
5.3240	46.950	53.350	47.920	50.320	48.730
5.3280	47.240	52.500	47.310	50.990	47.450
5.3320	47.800	53.230	47.230	50.150	46.920
5.3360	48.570	53.410	47.420	50.030	47.410
5.3400	47.910	52.750	47.500	50.370	46.820
5.3440	47.270	52.890	46.210	50.160	46.600
5.3480	47.520	52.410	48.620	50.150	47.250
5.3520	47.340	52.300	49.520	51.100	47.370
5.3560	48.050	52.910	47.790	50.480	48.770
5.3600	48.140	53.410	48.070	50.990	48.180
5.3640	47.460	53.240	48.590	50.450	47.620
5.3680	48.530	53.540	47.550	49.690	47.170
5.3720	47.840	53.530	47.130	50.620	47.530
5.3760	47.720	53.590	47.380	50.630	47.750
5.3800	47.690	53.630	47.470	50.940	47.480
5.3840	47.990	53.420	47.470	50.720	47.000
5.3880	48.560	53.860	47.570	50.180	47.160
5.3920	47.890	54.190	47.790	50.760	47.240
5.3960	47.530	54.770	48.290	49.300	47.830
5.4000	47.630	55.060	48.580	50.210	48.460
5.4040	47.890	55.320	47.150	51.000	47.330
5.4080	48.070	56.340	47.610	50.450	47.280
5.4120	48.490	56.400	47.390	50.160	47.270
5.4160	47.790	55.850	48.860	49.370	47.240
5.4200	49.010	56.560	46.720	49.140	47.470
5.4240	47.970	56.310	46.610	48.490	46.200
5.4280	48.150	56.900	47.920	49.770	48.630
5.4320	47.990	57.190	48.380	50.030	47.670
5.4360	48.250	58.550	47.390	51.190	46.400
5.4400	48.360	59.000	48.020	51.980	47.680
5.4440	48.010	59.040	48.420	52.910	47.840
5.4480	48.000	58.020	48.130	54.780	48.760
5.4520	48.630	57.320	47.790	55.350	48.220
5.4560	48.930	57.400	47.820	55.970	48.120
5.4600	47.690	56.640	47.880	56.230	48.160



5.4640	47.430	55.040	46.450	55.350	47.680
5.4680	48.530	55.160	48.770	53.640	48.530
5.4720	47.940	54.000	46.150	50.300	47.640
5.4760	47.500	52.560	48.240	50.730	46.980
5.4800	47.730	51.080	47.630	51.680	47.320
5.4840	47.020	50.270	47.230	51.740	47.640
5.4880	47.300	49.380	46.160	49.910	47.300
5.4920	46.650	49.290	46.590	49.580	46.780
5.4960	47.430	48.720	47.940	48.370	47.560
5.5000	48.180	48.790	47.780	48.170	47.340
5.5040	47.600	48.930	46.330	47.680	48.200
5.5080	46.560	48.310	46.960	47.340	46.750
5.5120	47.300	47.910	47.450	47.470	47.520
5.5160	48.290	46.300	47.110	47.950	47.270
5.5200	47.070	48.130	46.630	48.600	47.490
5.5240	47.840	48.970	47.120	47.390	47.950
5.5280	46.720	49.680	46.550	47.650	47.170
5.5320	47.230	49.320	49.000	46.510	47.630
5.5360	46.880	49.210	48.730	47.190	47.490
5.5400	47.680	48.510	48.250	47.030	48.640
5.5440	47.980	49.330	46.700	48.150	47.480
5.5480	49.010	49.610	48.370	47.520	47.330
5.5520	48.040	49.390	48.090	48.130	47.500
5.5560	47.820	48.810	47.680	48.020	47.010
5.5600	47.610	48.360	46.420	48.020	47.970
5.5640	45.450	49.630	46.950	47.830	48.360
5.5680	48.270	48.770	47.690	47.780	48.100
5.5720	48.930	49.520	46.190	48.280	47.500
5.5760	46.990	49.590	47.360	48.430	45.630
5.5800	46.900	47.640	46.520	47.790	48.070
5.5840	47.480	50.010	47.430	47.490	51.340
5.5880	47.220	50.720	46.950	48.250	49.490
5.5920	47.730	50.500	47.980	48.820	48.530
5.5960	48.420	50.770	48.210	48.970	47.050
5.6000	48.000	50.900	47.870	47.870	47.290
5.6040	47.030	51.450	46.750	47.330	46.670
5.6080	47.660	50.760	47.630	47.650	47.400
5.6120	47.620	50.890	48.230	47.650	47.430
5.6160	47.770	51.140	46.660	47.710	44.210
5.6200	47.610	51.620	47.140	47.060	47.020
5.6240	45.150	51.260	47.490	47.480	47.990
5.6280	46.800	51.970	47.750	47.540	47.870
5.6320	46.370	51.890	48.140	47.220	46.590
5.6360	46.620	51.480	47.940	47.350	46.660
5.6400	46.320	51.480	48.120	47.570	47.020
5.6440	47.650	51.720	48.510	47.170	47.180
5.6480	47.810	52.280	47.450	46.670	47.150
5.6520	47.480	51.270	47.550	46.840	47.290
5.6560	46.450	52.010	47.940	47.130	47.600
5.6600	46.960	52.740	47.490	47.890	47.040
5.6640	47.380	51.700	49.020	47.930	47.340
5.6680	48.340	52.290	47.240	46.800	47.950
5.6720	47.860	53.110	48.310	46.400	47.010
5.6760	47.270	51.860	47.320	46.990	46.840
5.6800	48.000	51.980	46.740	46.890	47.630
5.6840	47.680	51.610	46.530	46.830	47.440
5.6880	47.320	52.050	47.260	47.820	47.780

5.6920	47.450	52.820	48.100	47.810	47.650
5.6960	42.820	53.610	47.770	47.470	48.100
5.7000	46.500	53.430	47.630	48.320	47.390
5.7040	47.700	52.560	47.850	48.010	47.030
5.7080	46.640	53.420	47.670	47.940	47.020
5.7120	47.600	54.420	46.070	47.940	47.160
5.7160	48.310	55.050	45.960	48.320	47.840
5.7200	48.230	55.370	46.890	47.820	47.130
5.7240	47.310	55.140	46.650	48.020	47.650
5.7280	46.640	55.900	47.670	48.070	47.150
5.7320	46.550	57.080	47.860	47.410	46.920
5.7360	46.790	57.370	46.540	47.380	47.220
5.7400	48.140	57.480	46.960	48.250	48.040
5.7440	47.890	58.050	47.710	46.650	47.860
5.7480	47.870	59.030	46.960	48.010	47.660
5.7520	48.090	58.960	47.400	47.850	47.440
5.7560	47.500	60.320	49.300	49.380	46.490
5.7600	47.590	60.510	51.380	51.130	46.980
5.7640	48.640	60.730	49.900	50.180	47.400
5.7680	48.190	59.950	47.060	48.470	48.510
5.7720	49.200	58.400	47.090	48.990	48.170
5.7760	48.410	56.770	47.150	47.930	47.950
5.7800	47.240	56.420	47.060	49.070	48.420
5.7840	46.670	56.050	48.970	48.440	47.950
5.7880	48.020	54.650	48.530	47.790	47.080
5.7920	48.080	53.730	46.820	47.960	48.070
5.7960	48.200	52.230	46.110	48.210	48.950
5.8000	47.990	51.850	46.890	48.120	47.280
5.8040	47.820	52.300	47.510	47.600	47.250
5.8080	47.020	51.200	47.090	48.070	47.890
5.8120	46.920	50.960	47.150	48.050	46.130
5.8160	48.150	49.750	47.710	47.800	47.160
5.8200	46.840	49.490	48.090	47.720	46.230
5.8240	46.900	49.820	47.450	48.080	46.140
5.8280	47.020	48.750	47.410	47.440	46.530
5.8320	46.550	49.060	47.630	48.340	47.070
5.8360	47.120	48.840	47.660	48.210	47.730
5.8400	47.180	49.150	47.250	47.530	47.910
5.8440	46.780	48.010	46.650	47.710	47.600
5.8480	47.240	47.500	47.730	47.810	47.590
5.8520	46.420	48.030	47.420	47.580	47.850
5.8560	47.690	48.450	47.130	48.420	47.000
5.8600	47.730	48.110	47.500	48.730	46.870
5.8640	47.620	48.320	49.530	48.670	47.240
5.8680	46.690	49.030	50.730	48.660	47.910
5.8720	47.890	48.090	54.060	46.990	47.310
5.8760	48.040	46.720	56.650	48.440	47.580
5.8800	47.720	47.430	59.100	48.650	48.510
5.8840	46.580	47.710	59.410	48.710	47.740
5.8880	47.460	47.870	58.700	49.260	46.900
5.8920	47.570	48.340	57.880	48.590	47.160
5.8960	47.210	48.020	55.340	47.760	47.790
5.9000	45.740	48.700	53.830	48.440	47.490
5.9040	47.690	48.840	50.700	48.510	48.010
5.9080	46.920	47.750	48.370	47.770	46.650
5.9120	47.890	47.960	48.350	48.760	47.370
5.9160	47.480	48.470	47.450	49.910	47.050

5.9200	47.510	48.720	49.110	52.090	48.280
5.9240	47.950	48.760	48.690	50.960	47.680
5.9280	46.880	48.920	47.740	50.060	47.930
5.9320	47.320	48.780	46.580	49.270	48.210
5.9360	47.680	48.760	49.160	50.770	48.270
5.9400	48.040	49.130	50.550	53.090	48.060
5.9440	47.170	49.490	48.580	50.810	48.470
5.9480	47.730	49.720	47.290	49.670	48.420
5.9520	47.710	49.930	47.610	50.180	47.710
5.9560	47.820	48.950	49.460	49.380	48.040
5.9600	48.360	49.690	49.260	50.820	47.120
5.9640	47.610	50.140	48.630	51.620	48.400
5.9680	47.100	49.940	47.400	51.430	48.730
5.9720	48.170	49.310	47.850	52.370	48.760
5.9760	48.660	49.960	47.950	52.770	52.450
5.9800	48.910	50.690	50.370	55.030	55.560
5.9840	48.270	50.750	51.490	56.460	61.310
5.9880	48.460	51.140	54.130	59.070	69.170
5.9920	48.530	56.380	58.700	63.490	81.110
5.9960	71.230	102.35	98.470	74.670	129.51
6.0000	77.390	108.53	101.64	80.330	135.68
6.0040	71.460	102.65	98.770	75.230	129.81
6.0080	50.170	56.360	59.600	66.060	81.450
6.0120	49.790	51.720	55.960	62.750	69.390
6.0160	49.370	51.740	52.060	61.070	61.460
6.0200	50.280	52.320	51.220	60.640	55.280
6.0240	48.650	52.460	50.540	58.630	52.720
6.0280	48.970	52.160	49.650	58.360	49.070
6.0320	48.850	53.070	50.490	57.510	49.640
6.0360	47.820	53.860	50.650	58.360	47.980
6.0400	47.570	53.610	50.160	58.440	47.560
6.0440	48.220	53.670	50.090	57.220	47.570
6.0480	47.720	54.090	48.990	55.960	45.920
6.0520	47.150	54.270	48.670	57.480	46.140
6.0560	47.980	53.670	51.030	59.950	47.510
6.0600	49.350	52.070	55.180	62.740	47.520
6.0640	48.390	52.380	51.580	60.230	46.750
6.0680	48.380	51.890	47.840	57.340	46.760
6.0720	48.500	51.560	47.880	56.680	47.550
6.0760	47.960	51.360	51.140	59.430	48.220
6.0800	47.450	50.900	53.870	60.570	48.050
6.0840	47.570	50.290	51.370	56.840	48.350
6.0880	46.970	50.480	52.510	54.180	48.220
6.0920	46.520	49.570	55.320	51.620	48.510
6.0960	48.240	49.640	56.660	50.030	47.090
6.1000	47.240	49.500	60.640	50.430	47.250
6.1040	47.130	49.570	63.460	51.780	47.570
6.1080	46.550	50.440	65.570	52.090	46.800
6.1120	47.820	50.390	66.270	49.650	46.300
6.1160	47.650	49.640	66.040	50.560	46.260
6.1200	47.650	49.610	66.000	51.350	46.270
6.1240	47.270	48.920	63.890	50.400	46.150
6.1280	48.150	50.140	60.800	49.030	47.420
6.1320	48.890	49.460	56.330	49.130	45.710
6.1360	47.680	48.830	53.380	49.230	46.860
6.1400	47.950	50.210	49.490	48.820	46.540
6.1440	47.470	51.760	47.640	47.060	46.670

6.1480	47.540	51.470	47.690	48.910	46.840
6.1520	46.760	50.430	46.730	48.670	46.010
6.1560	46.380	51.150	46.880	49.230	46.620
6.1600	46.790	52.250	47.430	48.500	46.630
6.1640	46.790	53.490	47.330	48.140	46.890
6.1680	47.030	53.050	48.630	47.740	46.540
6.1720	47.590	54.050	49.470	47.910	47.250
6.1760	47.950	55.500	48.690	49.530	47.540
6.1800	47.280	56.570	48.140	49.330	47.720
6.1840	48.270	56.350	47.630	48.630	47.890
6.1880	48.220	57.620	47.850	48.110	47.100
6.1920	48.040	57.440	47.330	48.140	46.900
6.1960	47.880	57.940	48.740	47.090	47.440
6.2000	48.470	58.980	48.470	48.500	47.080
6.2040	48.430	59.470	47.570	47.030	47.610
6.2080	48.300	60.740	48.240	47.080	48.220
6.2120	47.500	61.420	46.990	47.370	47.550
6.2160	48.530	61.680	46.330	48.050	47.430
6.2200	48.150	61.130	48.170	46.670	46.300
6.2240	47.830	61.390	47.520	47.910	46.600
6.2280	48.150	62.080	47.540	48.460	48.100
6.2320	47.690	63.050	47.360	48.430	46.860
6.2360	47.770	63.260	47.610	48.340	46.620
6.2400	47.460	63.790	48.290	49.460	47.570
6.2440	48.210	62.800	47.600	47.780	47.400
6.2480	49.170	62.340	47.950	47.540	46.740
6.2520	48.880	62.170	47.850	48.610	46.260
6.2560	48.620	61.940	48.550	48.880	47.440
6.2600	47.570	61.530	47.240	48.850	47.060
6.2640	48.130	61.660	47.760	47.310	47.280
6.2680	47.680	61.610	47.470	47.070	47.460
6.2720	48.110	61.310	47.620	46.670	47.720
6.2760	48.650	61.050	47.010	47.820	46.710
6.2800	48.110	60.700	47.430	48.190	47.320
6.2840	48.010	60.270	47.830	48.400	48.210
6.2880	48.280	60.260	47.910	48.170	48.370
6.2920	48.540	59.010	47.040	48.100	48.260
6.2960	47.690	58.040	47.390	47.540	47.610
6.3000	47.900	57.230	47.720	48.780	48.370
6.3040	48.150	56.650	47.000	48.780	47.170
6.3080	47.520	55.720	46.750	47.210	47.850
6.3120	47.060	56.000	45.640	47.880	46.670
6.3160	46.740	56.150	46.710	47.240	47.280
6.3200	48.120	54.250	47.350	48.140	47.600
6.3240	48.510	53.430	47.780	47.800	46.950
6.3280	48.060	53.400	47.290	47.680	47.130
6.3320	46.970	53.040	47.470	47.820	47.610
6.3360	47.500	52.980	48.000	47.740	47.220
6.3400	46.920	53.190	47.360	46.960	47.670
6.3440	47.170	53.320	46.940	46.790	47.650
6.3480	47.040	53.250	46.100	45.970	47.250
6.3520	47.330	53.020	47.490	47.090	45.650
6.3560	47.540	51.600	47.630	47.390	47.140
6.3600	48.000	50.530	47.550	47.910	46.190
6.3640	47.260	50.840	46.300	45.770	47.570
6.3680	47.190	50.130	46.430	47.070	45.750
6.3720	47.080	50.580	47.130	47.000	46.400

6.3760	47.740	50.000	46.700	46.810	46.890
6.3800	48.340	51.200	46.940	47.020	47.550
6.3840	47.850	50.780	47.030	47.060	46.600
6.3880	46.830	50.530	47.730	46.750	45.870
6.3920	47.800	50.410	47.370	47.120	46.550
6.3960	47.610	51.380	46.200	47.460	47.530
6.4000	47.980	51.910	46.690	47.390	47.140